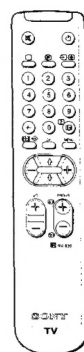
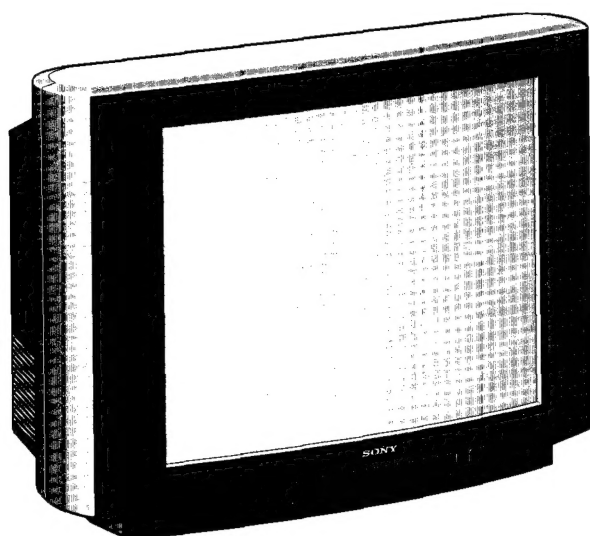


# SERVICE MANUAL

# BE-3D CHASSIS

| MODEL    | COMMANDER | DEST.   | CHASSIS NO. | MODEL    | COMMANDER | DEST.   | CHASSIS NO. |
|----------|-----------|---------|-------------|----------|-----------|---------|-------------|
| KV-25C1A | RM-839    | Italian | SCC-K05C-A  | KV-25C1E | RM-839    | Spanish | SCC-K06C-A  |
| KV-25C1B | RM-839    | French  | SCC-K01C-A  | KV-25C1K | RM-839    | OIRT    | SCC-K08D-A  |
| KV-25C1D | RM-839    | AEP     | SCC-K07C-A  | KV-25C1R | RM-839    | OIRT    | SCC-K08E-A  |



TRINITRON® COLOR TV  
**SONY®**



| ITEM    | MODEL            | Television System  | Channel Coverage | Colour System                                     |
|---------|------------------|--|------------------|---|
| Italian | B/G/H            | VHF: E2-E12, S1-S20, A-H, H1, H2<br>UHF: E21-E69   |                  | PAL<br>NTSC3.58/4.43<br>(video input only)        |
| French  | B/G/H, D/K, L, I | L SECAM VHF: F2-F10 UHF: F21-F69<br>TV CABLE TV (1) VHF: B-Q UHF: S21-S44<br>PAL B/G/H VHF: E2-E12 UHF: E21-E69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, M1-M10, U1-U10<br>ITALIA VHF: A-H, H1, H2<br>PAL I UHF: B21-B69<br>D/K VHF: R01-R20 UHF: B21-B69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, S42-S46 |                  | PAL, SECAM<br>NTSC3.58/4.43<br>(video input only) |
| AEP     | B/G/H, D/K       | B/G/H VHF: E2-E12 UHF: S1-S20<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, M1-M10, U1-U10<br>ITALIA VHF: A-H, H1, H2<br>D/K VHF: R01-R20 UHF: B21-B69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, S42-S46   |                  | PAL, SECAM<br>NTSC3.58/4.43<br>(video input only) |
| Spanish | B/G/H, D/K       | PAL B/G/H VHF: E2-E12 UHF: E21-E69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, M1-M10, U1-U10<br>ITALIA VHF: A-H, H1, H2<br>D/K VHF: R01-R20 UHF: B21-B69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, S42-S46  |                  | PAL, SECAM<br>NTSC3.58/4.43<br>(video input only) |
| OIRT    | B/G/H, D/K       | B/G/H VHF: E2-E12 UHF: E21-E69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, M1-M10, U1-U10<br>ITALIA VHF: A-H, H1, H2<br>D/K VHF: R01-R12 UHF: R21-R69<br>CABLE TV (1) : S1-S41<br>CABLE TV (2) : S01-S05, S42-S46  |                  | PAL, SECAM<br>NTSC3.58/4.43<br>(video input only) |

| MODEL             | 25C1A | 25C1B | 25C1D | 25C1E | 25C1K<br>25C1R |
|-------------------|-------|-------|-------|-------|----------------|
| Power Consumption | 72W   | 82W   | 82W   | 82W   | 82W            |

## SPECIFICATIONS

Picture Tube Super Trinitron  
Approx. 63 cm (25 inches)  
(Approx. 59 cm picture measured diagonally)  
110° -deflection

### Rear/Front Terminals

#### [REAR]

- ➡ 1 21-pin Euro connector (CENELEC standard)
  - Inputs for audio / video signals
  - Inputs for RGB
  - Outputs for TV audio and video signals
- ➡ 2/➡ 2, 21-pin Euro connector (CENELEC standard)
  - Inputs for audio / video signals
  - Inputs for S video
  - Outputs for TV audio and video signals (selectable)

#### [FRONT]

- ➡ 3, Video input - phono jack
- ➡ 3, Audio inputs - phono jacks
- ➡ 3, S video input - 4 pin DIN
- 🎧 Stereo minijack - headphone jack

#### Sound output




- Left/Right 2x5W (RMS)  
2x10W (music power)
- Dimensions 717x507x486 mm approx.
- Weight Approx. 33.0 kg
- Supplied accessories RM-839 Remote Commander (1)  
Batteries R6 (2)
- Other features Fastext, TOPTEXT

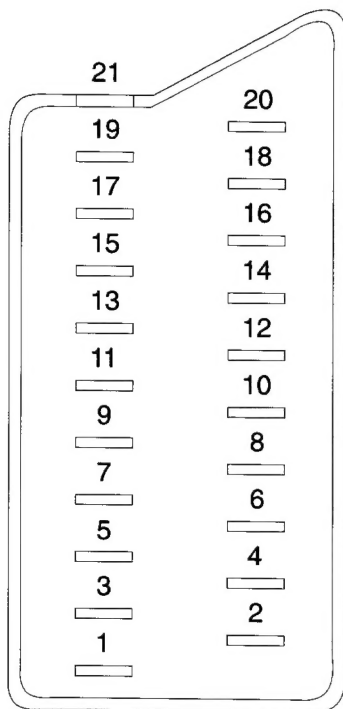
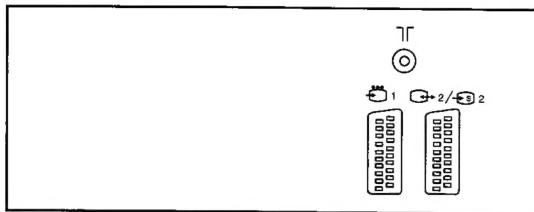
**[RM-839]**

Remote control system Infrared control  
 Power requirements 3V dc (2 batteries) R6 (size AA)  
 Dimensions Approx. 210x45x24 mm (w/h/d)  
 Weight Approx. 90g (Not including battery)

**Design and specifications are subject to change without notice.**

| Model name<br>Item | KV-25C1A | KV-25C1B | KV-25C1D | KV-25C1E | KV-25C1K<br>KV-25C1R |
|--------------------|----------|----------|----------|----------|----------------------|
| PIP                | OFF      | OFF      | OFF      | OFF      | OFF                  |
| MPIP               | OFF      | OFF      | OFF      | OFF      | OFF                  |
| Scart 1            | ON       | ON       | ON       | ON       | ON                   |
| Scart 2            | ON       | ON       | ON       | ON       | ON                   |
| Front in (3)       | ON       | ON       | ON       | ON       | ON                   |
| Scart 4            | OFF      | OFF      | OFF      | OFF      | OFF                  |
| AKB in 16:9 mode   | ON       | ON       | ON       | ON       | ON                   |
| TXT                | ON       | ON       | ON       | ON       | ON                   |
| FLOF               | ON       | ON       | ON       | ON       | ON                   |
| TOP                | ON       | ON       | ON       | ON       | ON                   |
| Norm B/G/H         | ON       | ON       | ON       | ON       | ON                   |
| Norm I             | OFF      | ON       | OFF      | OFF      | OFF                  |
| Norm D/K           | OFF      | ON       | ON       | ON       | ON                   |
| Norm AUS           | OFF      | OFF      | OFF      | OFF      | OFF                  |
| Norm L             | OFF      | ON       | OFF      | OFF      | OFF                  |
| Norm SAT           | OFF      | OFF      | OFF      | OFF      | OFF                  |
| Norm M             | OFF      | OFF      | OFF      | OFF      | OFF                  |
| Language Preset    | Italian  | French   | German   | Spanish  | OIRT                 |

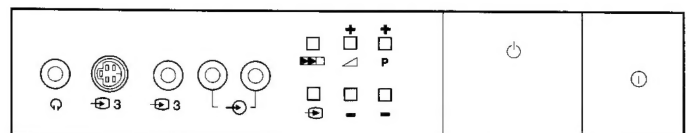
21 pin connector (  1,  2 /  2 )



| Pin No. | 1 | 2 | 4 | Signal                       | Signal Level  |
|---------|---|---|---|------------------------------|---|
| 1       | ○ | ○ | ○ | Audio output B (Right)       | Standard level : 0.5V rms<br>Output impedance : Less than 1k ohms*  |
| 2       | ○ | ○ | ○ | Audio input B (Right)        | Standard level : 0.5V rms<br>Output impedance : More than 10k ohms*   |
| 3       | ○ | ○ | ○ | Audio output A (Left)        | Standard level : 0.5V rms<br>Output impedance : Less than 1k ohm*   |
| 4       | ○ | ○ | ○ | Ground (Audio)               |   |
| 5       | ○ | ○ | ○ | Ground (Blue)                |   |
| 6       | ○ | ○ | ○ | Audio input A (Left)         | Standard level : 0.5V rms<br>Output impedance : Less than 10k ohm*  |
| 7       | ○ | ● | ● | Blue input                   | 0.7 ± 3dB, 75 ohms, positive  |
| 8       | ○ | ○ | ○ | Function select (AV control) | High state (9.5 - 12V) : Part mode<br>Low state (0 - 2V) : TV mode<br>Input impedance : More than 10k ohms<br>Input capacitance : Less than 2nF |
| 9       | ○ | ○ | ○ | Ground (Green)               |   |
| 10      | ○ | ○ | ○ | Open                         |   |
| 11      | ○ | ● | ● | Green                        |   |
| 12      | ○ | ○ | ○ | Open                         |   |
| 13      | ○ | ○ | ○ | Ground (Red)                 |   |
| 14      | ○ | ○ | ○ | Ground (Blanking)            |   |
| 15      | ○ | — | — | Red input                    | 0.7 ± 3dB, 75 ohms, positive  |
|         | — | ○ | ○ | (S signal) chroma input      | 0.7 ± 3dB, 75 ohms, positive  |
| 16      | ○ | ● | ● | Blanking input (Ys signal)   | High state (1 - 3V) Low state (0 - 0.4V)<br>Input impedance : 75 ohms   |
| 17      | ○ | ○ | ○ | Ground (Video output)        |   |
| 18      | ○ | ○ | ○ | Ground (Video input)         |   |
| 19      | ○ | ○ | ○ | Video output                 | 1V ± 3dB, 75ohms,<br>positive sync : 0.3V (-3 + 10dB)   |
| 20      | ○ | — | — | Video input                  | 1V ± 3dB, 75ohms,<br>positive sync : 0.3V (-3 + 10dB)   |
|         | — | ○ | ○ | Video input Y (S signal)     | 1V ± 3dB, 75ohms,<br>positive sync : 0.3V (-3 + 10dB)   |
| 21      | ○ | ○ | ○ | Common ground (plug, shield) |   |

○ Connected    ● Not Connected (Open)    \* at 20Hz - 20kHz

| Pin No. | Signal             | Signal Level                                   |
|---------|--------------------|--|
| 1       | Ground             |  |
| 2       | Ground             |  |
| 3       | Y (S signal) input | 1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB |
| 4       | C (S signal) input | 0.3V ± 3dB 75ohm, positive Sync.               |





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
**CAUTION**

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

**WARNING !!**

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.  
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.


**ATTENTION**

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

**ATTENTION !!**

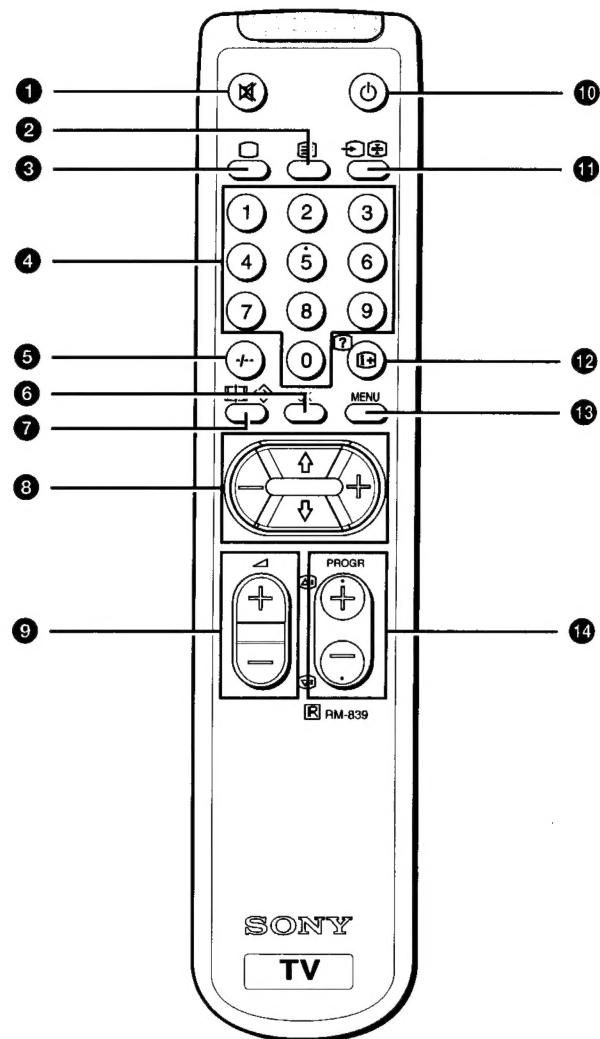
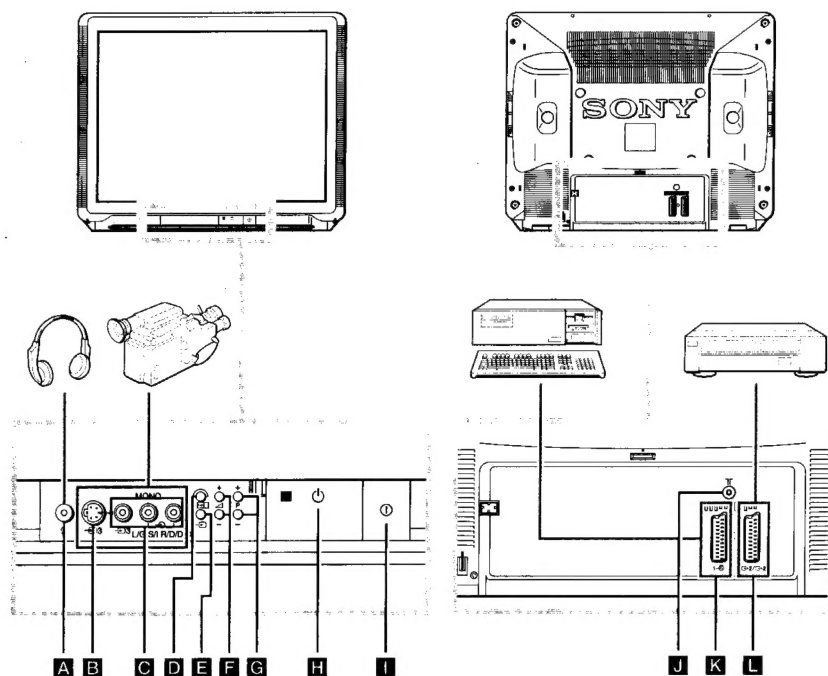
AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

**ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!**

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

## SECTION 1 GENERAL



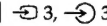








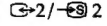

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.















## Overview

This section briefly describes the controls and the buttons on the TV set and on the Remote Commander. Please open the flap at the front of the instruction manual for illustrations of the TV set and the Remote Commander. Letters in boxes refer to the buttons on the TV set, numbers in circles to the buttons on the Remote Commander. For more information, refer to the page numbers given next to each description.

### TV buttons and Terminals

| Reference and Symbol   | Name                    | Refer to Page |
|--|-------------------------|---------------|
| <b>Front of the set</b>  |                         |               |
| <b>A</b>    | Headphones jack         | 4             |
| <b>B</b>  3   | S video input jack      | 29            |
| <b>C</b>  3,  3      | Audio/video input jacks | 29            |
| <b>D</b>    | Automatic Preset button | 11            |
| <b>E</b>    | Input mode button       | 13            |
| <b>F</b>  +/-   | Volume control          | 12            |
| <b>G</b> <b>P</b> +/-  | Programme button        | 12            |
| <b>H</b>    | Standby mode indicator  | 12            |
| <b>I</b>    | Main power switch       | 12            |
| <b>Rear of the set</b>   |                         |               |
| <b>J</b>    | Aerial socket           | 10            |
| <b>K</b>  1   | 21 pin Euro connector   | 29            |
| <b>L</b>  2 /  2 | 21 pin Euro connector   | 29            |



### Remote Commander Operation

| Reference and Symbol  | Name   | Refer to Page |
|---|--|---------------|
| <b>1</b>   | Muting on/off button                                     | 12            |
| <b>2</b>   | Teletext button  | 13            |
| <b>3</b>   | TV power on/TV mode button                               | 12, 13        |
| <b>4</b> 1, 2, ..., 9, 0  | Number buttons   | 12            |
| <b>5</b> - / - -  | Double digit entering button                             | 12            |
| <b>6</b> OK   | OK (Confirmation) button                                 | 14            |
| <b>7</b>  /   | Screen format button<br>Teletext: Favourite pages button | 12, 28        |
| <b>8</b>   | Menu control   | 14            |
| <b>9</b>  +/-  | Volume control button                                    | 12            |
| <b>10</b>    | Standby button   | 12            |
| <b>11</b>  /  | Input mode button<br>Teletext: Freezing the subpage      | 13, 27        |
| <b>12</b>  /  | On-screen display button<br>Teletext: reveal button      | 12, 27        |
| <b>13</b> MENU  | Menu on/off button                                       | 14            |
| <b>14</b> <b>PROGR</b> +/-  | Programme buttons<br>Teletext: Page up/page down buttons | 12, 13        |

Getting Started

Step 1

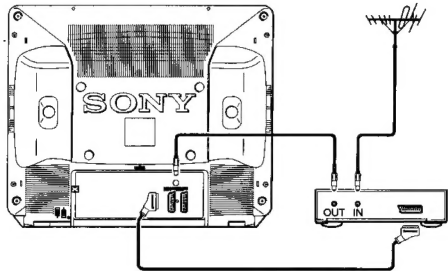
Connecting the Aerial  
(If you connect a VCR, skip to step 2)

Insert the aerial plug tightly into the aerial socket  . Use a good-quality aerial cable (not supplied), corresponding to the relevant regulations.

Step 2

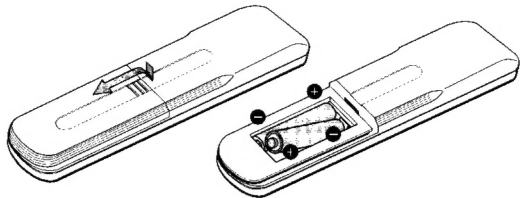
Connecting a VCR

We recommend that you tune in the VCR signal to programme number "0". For details, see "Presetting Channels Manually" on page 16.  
See "Connecting Optional Equipment" on page 29 for more information.



Step 3

Inserting the Batteries Into the Remote Commander






Respect your environment! Dispose of used batteries in an environmentally friendly way.

Step 4

Presetting Channels Automatically

With this function, the TV can automatically search and store up to 100 different channel numbers.  
If you prefer manual presetting, refer to "Presetting Channels Manually" on page 16.

- 1 Plug into mains.  
Press the power switch  on the TV set.
- 2 Press and hold the button   on the TV set until the automatic menu is displayed and the search starts.

After all available channels are stored, the normal TV picture is shown.

Note: Channels are automatically stored as follows;

| KV-25X1U/29X1U         | KV-25X1L/29X1L         |
|------------------------|------------------------|
| Programme 1 BBC1       | Programme 1 RTE1       |
| Programme 2 BBC2       | Programme 2 RTE2       |
| Programme 3 ITV        | Programme 3 BBC1       |
| Programme 4 CH4 or S4C | Programme 4 BBC2       |
|                        | Programme 5 ITV        |
|                        | Programme 6 CH4 or S4C |

## TV Operation

This section explains functions used whilst watching TV. Most operations are carried out using the remote commander (numbers in circles). All basic functions are also available on the TV set (letters in boxes). Open the flap at the front of the Instruction Manual to see the illustrations of the Remote Commander and the TV set.

### TV Operation

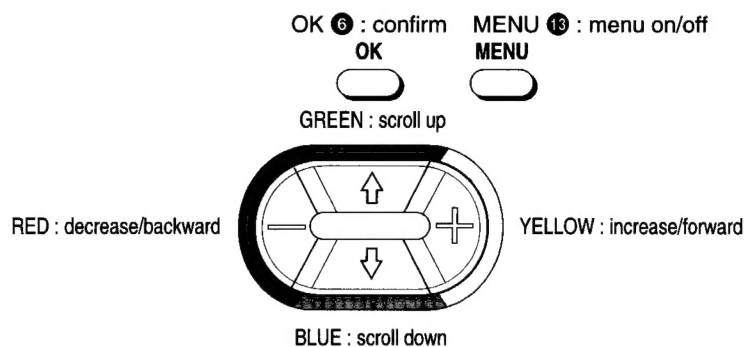
| To                            | Press  |
|-------------------------------|--|
| Switch on                     | ⓪ <b>I</b> on TV   |
| Switch off temporarily        | ⓪ <b>10</b><br>TV is now in standby mode and ⓪ <b>H</b> indicator on TV lights up.   |
| Switch on from standby mode   | ⓪ <b>3</b> , <b>PROGR +/- 14 G</b> or any number button <b>4</b> .   |
| Switch off completely         | ⓪ <b>I</b> on TV<br>To save energy, switch off your TV completely when TV is not in use.   |
| Select programmes             | <b>PROGR +/- 14 G</b> or number buttons <b>4</b><br>For double digit number, press <b>-/- 5</b> then the number<br>e.g. For 23, press <b>-/- 5</b> then 2 and 3. |
| Display on screen indications | <b>i+ 12</b> . Press again to make the indications disappear.  |
| Adjust the volume             | <b>△ + or - 9 F</b>  |
| Mute the sound                | <b>⊞ 1</b> . Press again to restore the sound.   |
| View programmes in 16:9 mode  | <b>⊞ 7</b> . Press again to return to 4:3 mode.  |

### TV Operation (continued)

| To  | Press   |
|---|---|
| View video input picture (see page 30 for detailed information) | <b>↔ 11 E</b> repeatedly until the desired video input appears. Press <b>⓪ 3</b> to restore the TV picture. |
| View teletext (see page 27 for detailed information)            |   |
| Switch on   | <b>≡ 2</b>  |
| Select a page   | three number buttons <b>4</b> or <b>≡▲ 14</b> (for next page) or <b>≡▼ 14</b> (for previous page).          |
| Use fastext   | Blue, Green, Red or Yellow <b>8</b> .   |
| Switch off  | <b>⓪ 3</b>  |

## Adjusting and Setting the TV Using the Menu

You can adjust and set various functions on the TV using the following remote commander buttons:



## Choosing the Menu Language

This function enables you to change the language of the menu screens.

1 Press power switch ① **I** on the TV. If the standby indicator ② **H** on the TV is lit, press ③ or a number button ④ on the Remote Commander.

2 Press the MENU button ⑬ on the remote commander.

LANGUAGE

- ENGLISH
- DEUTSCH
- FRANÇAIS
- ITALIANO
- NEDERLANDS
- POLSKI
- ČESKY
- MAGYAR


3 Press blue or green ⑧ to select the language you want then press yellow ⑨.

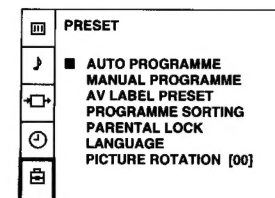
4 Press the MENU button ⑬ to restore the normal TV picture.

## Presetting Channels Automatically

You may have already preset the channels automatically by using the method shown on page 11. You can also preset channels automatically by using the remote commander as follows:

1 Press the MENU button ⑬.

2 Press blue or green ⑧ to select the symbol  on the menu screen then press yellow ⑨.



3 Press blue or green ⑧ to select 'AUTO PROGRAMME'.

4 Press and hold yellow ⑨ until the automatic menu is displayed and the search starts.

AUTO PROGRAMME

PROG SYS CH LABEL

01 B/G C25 -----


||||||| -----

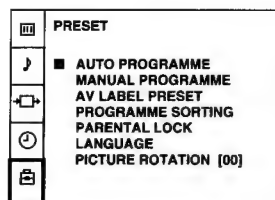
After all available channels have been preset, the normal TV picture is shown.

## Presetting Channels Manually

This function enables you to preset channels one by one to different programme numbers. This is also convenient for allocating programme numbers to various video input sources.

**1** Press the MENU button **13**.

**2** Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.



**3** Press blue or green **8** to select 'MANUAL PROGRAMME' then press yellow **8**.

| MANUAL PROGRAMME PRESET |     |      |       |     |  |
|-------------------------|-----|------|-------|-----|--|
| PROG                    | SYS | CHAN | LABEL | AFT |  |
| 1                       | B/G | C 1  | ----  | ON  |  |
| 2                       | B/G | C 4  | ----  | ON  |  |
| 3                       | B/G | C12  | ----  | ON  |  |
| 4                       | B/G | C22  | ----  | ON  |  |
| 5                       | B/G | C33  | ----  | ON  |  |
| 6                       | B/G | C41  | ----  | ON  |  |
| 7                       | B/G | C17  | ----  | ON  |  |
| 8                       | B/G | C32  | ----  | ON  |  |

**4** Press blue or green **8** to select on which programme number you want to preset a channel then press yellow **8**.

**5** Press blue or green **8** to select the TV broadcast system 'T' or a video input source (AV1, AV2 ...) then press yellow **8**.

**6** (This step 6 is only for KV-25X1L/29X1L)

Press blue or green **8** to select 'C' (for terrestrial channels) or 'S' (for cable channels) then press yellow **8**.

**7** Select the first number digit of 'CHAN' then the second number digit of 'CHAN' with the number buttons **4** on the remote commander

or

Press blue or green **8** to search for the next available channel number.

**8** If you want to store the channel number, go to step 9. If not, select a new channel number using the number buttons **4** on the remote commander or press blue or green **8** to resume the search.

**9** Press OK **6**.



**10** Repeat steps 4 to 9 to preset other channels.

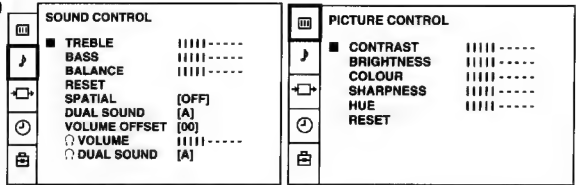
**11** Press the MENU button **13** to restore the normal TV picture.

# Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste.

1 Press the MENU button 13.

2 Press blue or green 8 to select  for picture control or  for sound control then press yellow 9.



3 Press blue or green 8 to select the desired item then press yellow 9.

4 Press red or yellow 8 to alter the item then press OK 6.  
For the effect of each control, see the following tables.

5 Repeat steps 3 and 4 to adjust the other items.



6 Press the MENU button 13 to restore the normal TV picture.

## PICTURE CONTROL Effect

|            |  |
|------------|--|
| Contrast   | Lower —   — Higher                           |
| Brightness | Darker —   — Brighter                        |
| Colour     | Less —   — More                              |
| Sharpness  | Softer —   — Sharper                         |
| Hue        | Greenish —   — Reddish (NTSC signals only)   |
| Reset      | Resets picture to the factory preset levels. |

## Adjusting the Picture and Sound (continued)

### SOUND CONTROL Effect

|  |  |
|--|--|
| Treble   | Less —   — More  |
| Bass   | Less —   — More  |
| Balance  | Left —   — Right   |
| Reset  | Resets sound to the factory preset levels.   |
| Spatial  | Acoustic sound effect.   |
| Dual Sound   | A: Left channel —> B: Right channel —> stereo —> mono                                    |
| Volume Offset  | Presets the volume level for individual programmes.<br>-12 — 0 — +12                     |
|  Volume     | Adjusts the headphone volume.  |
|  Dual Sound | Presets the headphone channels.<br>A: Left channel —> B: Right channel —> stereo —> mono |




## Manual Fine-Tuning

Normally, the automatic fine-tuning (AFT) function is operating.

If the picture is distorted however, you can manually fine-tune the TV to obtain a better picture reception.

1 Press the MENU button **13**.

2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.

3 Press blue or green **8** to select 'MANUAL PROGRAMME' then press yellow **8**.

| MANUAL PROGRAMME PRESET |     |      |       |     |  |
|-------------------------|-----|------|-------|-----|--|
| PROG                    | SYS | CHAN | LABEL | AFT |  |
| 1                       | B/G | C 1  | ----  | ON  |  |
| 2                       | B/G | C 4  | ----  | ON  |  |
| 3                       | B/G | C12  | ----  | ON  |  |
| ■ 4                     | B/G | C22  | ----  | ON  |  |
| 5                       | B/G | C33  | ----  | ON  |  |
| 6                       | B/G | C41  | ----  | ON  |  |
| 7                       | B/G | C17  | ----  | ON  |  |
| 8                       | B/G | C32  | ----  | ON  |  |

4 Press blue or green **8** to select the programme number which corresponds to the channel you want to manually fine-tune.

5 Press yellow **8** repeatedly until the AFT position changes colour..

6 Press blue or green **8** to change the frequency of the channel from -15 to +15.

7 Press OK **6**.


8 Repeat steps 4 to 7 to fine-tune other channels.

9 Press the MENU button **13** to restore the normal TV picture.






## Sorting Programme Positions

This function enables you to move channels to different programme numbers.

1 Press the MENU button **13**.

2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.

3 Press blue or green **8** to select 'PROGRAMME SORTING' then press yellow **8**.

| PRESET  |                       |
|---|-----------------------|
|  | ■ AUTO PROGRAMME      |
|  | MANUAL PROGRAMME      |
|  | AV LABEL PRESET       |
|  | PROGRAMME SORTING     |
|  | PARENTAL LOCK         |
|   | LANGUAGE              |
|   | PICTURE ROTATION [00] |

4 Press blue or green **8** to select the channel you want to move to another programme number then press yellow **8**.

| PROGRAMME SORTING |     |      |         |
|-------------------|-----|------|---------|
| PROG              | SYS | CHAN | LABEL   |
| ■ 1               | B/G | C23  | BBC - 1 |
| 2                 | B/G | C28  | RTL - - |
| 3                 | B/G | C29  | VHS - 1 |
| 4                 | B/G | C31  | ZDF - - |
| 5                 | B/G | C44  | ITV - - |
| 6                 | B/G | C14  | SKY - - |
| 7                 | B/G | C15  | SAT - 1 |
| 8                 | B/G | C16  | BBC - 2 |


5 Press blue or green **8** to select the programme number to which you want to move the channel selected in step 4 then press yellow **8**.

6 Repeat steps 4 to 5 if you wish to move other channels to different programme numbers.

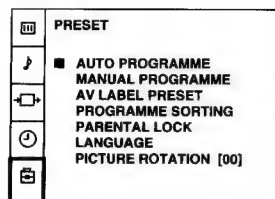
7 Press the MENU button **13** to restore the normal TV picture.


## Using Parental Lock

This function enables you to prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

- 1 Press the MENU button **13**.
- 2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.

- 3 Press blue or green **8** to select 'PARENTAL LOCK' then press yellow **8**.



- 4 Press blue or green **8** to select the channel you want to block then press yellow **8**.  
The symbol  appears before the programme number to indicate that this channel is now blocked.

| PARENTAL LOCK |     |      |         |
|---------------|-----|------|---------|
| PROG          | SYS | CHAN | LABEL   |
| 1             | B/G | C23  | BBC - 1 |
| 2             | B/G | C26  | RTL --  |
| 3             | B/G | C29  | VHS - 1 |
| 4             | B/G | C31  | ZDF --  |
| 5             | B/G | C44  | ITV --  |
| 6             | B/G | C14  | SKY --  |
| 7             | B/G | C15  | SAT - 1 |
| 8             | B/G | C16  | BBC - 2 |


- 5 Repeat step 4 if you wish to block other channels.
- 6 Press the MENU button **13** to restore the normal TV picture.

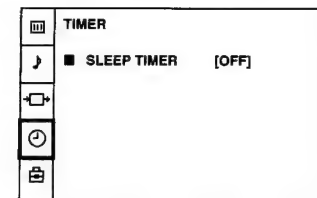
**Note:** To unblock, press yellow **8** after selecting the channel to unblock in the 'PARENTAL LOCK' menu.

## Using the Sleep Timer

This function enables you to select a time period after which the TV automatically switches into standby mode.

- 1 Press the MENU button **13**.

- 2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.



- 3 Press yellow **8**.
- 4 Press red or yellow **8** to set time delay and press OK **6**.

OFF 0:30 1:00 1:30 ..... 3:30 4:00


One minute before the TV switches into standby mode, a message is displayed on the screen.

- 5 Press the MENU button **13** to restore the normal TV picture.






## Skiping Programme Positions

This function enables you to skip unused channels when selecting programme numbers with the PROGR+/- buttons. However, you can still watch the skipped channel(s) by using the number buttons.

1 Press the MENU button **13**.

2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.

3 Press blue or green **8** to select 'MANUAL PROGRAMME' then press yellow **8**.

|   |                       |
|---|-----------------------|
|  | PRESET                |
|  | ■ AUTO PROGRAMME      |
|  | MANUAL PROGRAMME      |
|  | AV LABEL PRESET       |
|  | PROGRAMME SORTING     |
|   | PARENTAL LOCK         |
|   | LANGUAGE              |
|   | PICTURE ROTATION [00] |

4 Press blue or green **8** to select the channel you want to skip then press yellow **8**.

5 Press blue or green **8** until '...' appears in the 'SYS' position.

| MANUAL PROGRAMME PRESET |     |      |       |     |
|-------------------------|-----|------|-------|-----|
| PROG                    | SYS | CHAN | LABEL | AFT |
| 1                       | B/G | C 1  | ----  | ON  |
| 2                       | B/G | C 4  | ----  | ON  |
| 3                       | B/G | C12  | ----  | ON  |
| 4                       | ... | C22  | ----  | ON  |
| 5                       | B/G | C33  | ----  | ON  |
| 6                       | B/G | C41  | ----  | ON  |
| 7                       | B/G | C17  | ----  | ON  |
| 8                       | B/G | C32  | ----  | ON  |

6 Press OK **6**.


7 Repeat steps 4 to 6 to skip other channels.

8 Press the MENU button **13** to restore the normal TV picture.






## Captioning a Station Name

Names for channels are usually automatically taken from teletext if available. You can however name a channel or an input video source using up to five characters (letters or numbers).

1 Press the MENU button **13**.

2 Press blue or green **8** to select the symbol  on the menu screen then press yellow **8**.

3 Press blue or green **8** to select 'MANUAL PROGRAMME' then press yellow **8**.

|   |                       |
|---|-----------------------|
|  | PRESET                |
|  | ■ AUTO PROGRAMME      |
|  | MANUAL PROGRAMME      |
|  | AV LABEL PRESET       |
|  | PROGRAMME SORTING     |
|   | PARENTAL LOCK         |
|   | LANGUAGE              |
|   | PICTURE ROTATION [00] |

4 Press blue or green **8** to select the channel you wish to caption then press yellow **8** repeatedly until the first element of the 'LABEL' position is highlighted.

5 Press **8** blue or green to select a letter or number and press yellow **8** (select '-' for a blank). Select other characters in the same way.

| MANUAL PROGRAMME PRESET |     |      |        |     |
|-------------------------|-----|------|--------|-----|
| PROG                    | SYS | CHAN | LABEL  | AFT |
| 1                       | B/G | C 1  | ----   | ON  |
| 2                       | B/G | C 4  | ----   | ON  |
| 3                       | B/G | C12  | ----   | ON  |
| 4                       | B/G | C22  | A----- | ON  |
| 5                       | B/G | C33  | -----  | ON  |
| 6                       | B/G | C41  | -----  | ON  |
| 7                       | B/G | C17  | -----  | ON  |
| 8                       | B/G | C32  | -----  | ON  |

6 After selecting all the characters, press OK **6**.



7 Repeat steps 4 to 6 to caption names for other channels.

8 Press the MENU button **13** to restore the normal TV screen.






Teletext

Most TV channels broadcast information via teletext. The index page of the broadcaster (usually page 100) gives you information on how to use the service.  
Make sure you use a TV channel with a strong signal, otherwise teletext errors may occur.

Switching Teletext On and Off

- 1 Select the channel which carries the teletext service you wish to view.
- 2 Press  2 to display teletext.  
If no teletext signal is broadcast, the indication P100 is displayed on a black screen.
- 3 Input three digits for the page number using the number buttons 4.  
The page counter searches for the page and after some seconds the page is displayed.
- 4 Press  3 to return to the normal TV picture.


Using Other Teletext Functions

| To  | Press  |
|---|--|
| Access the next or preceding teletext page        |  14 for the next page or<br> 14 for the preceding page         |
| Mix the mode                                      |  2 when in teletext mode.<br>Now the teletext page is superimposed on the TV programme. Press again to return to the normal teletext display. |
| Freeze a teletext subpage                         |  11. Press once again to cancel.  |
| Reveal hidden information (eg: answers to a quiz) |  12. Press once again to cancel.  |

Favourite page system

You can store up to four of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.


Storing pages

- 1 Use the number buttons 4 to select the page you would like to store.
- 2 Press  7 twice.  
The colour prompts at the bottom of the screen flash.
- 3 Press red, green, blue or yellow to store the selected page.  
The page is now stored on this colour.

Repeat steps 1 to 3 for the other 3 pages.

Displaying the Favourite Pages

- 1 Press  7.
- 2 Press blue, green, red or yellow to select the desired page.

Make sure you press  7, otherwise the normal Fastext facility operates.

Using Fastext

(only available, if the TV station broadcasts Fastext signals)

With Fastext you can access pages with one key stroke . When Fastext is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue colours on the Remote Commander.

Press the Remote Commander colour button that corresponds to the colour-coded menu. The selected page is displayed after some seconds.

## Connecting Optional Equipment

There is a wide range of optional equipment you can connect to your TV. Refer to the illustrations on the front flap page of this manual.

| Symbol                            | Acceptable input signals       | Available output signals         |
|-----------------------------------|--------------------------------|----------------------------------|
| → 3, → 3 <b>B</b><br>→ 3 <b>C</b> | Normal audio/video and S video | No output                        |
| → 1 <b>K</b>                      | Normal audio/video and RGB     | Audio/video from TV tuner        |
| → 2/→ 2 <b>L</b>                  | Normal audio/video and S video | Audio/video from selected source |

### About S video input

Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the two signals prevents interference and thus improves the picture quality.

### Notes on connections:

If the picture or sound is distorted, move the VCR away from the TV.

When connecting a monaural VCR, connect only the white jack to both the TV and VCR.

## Selecting Input and Output Signals

This section explains how to select the output signal from → 2/→ 2 **L** and how to select and view the input. You can use direct access buttons → 1 **E** to select the input or the menu system to select input and output.

### Selecting With Direct Access Buttons

Press → 1 **E** repeatedly.

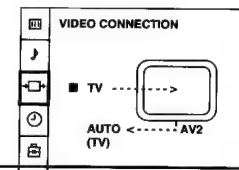
Press → 3 to restore the normal TV picture.

| Symbol on the screen | Input Signal                                   |
|----------------------|--|
| → 1                  | Audio/video through Euro AV connector <b>K</b> |
| → 1                  | RGB through Euro AV connector <b>K</b>         |
| → 2                  | Audio/video through Euro AV connector <b>L</b> |
| → 2                  | S video through Euro AV connector <b>L</b>     |
| → 3                  | Audio/video through the phono jacks <b>C</b>   |
| → 3                  | S video through the phono jacks <b>B</b>       |

### Selecting With the Video Connection Menu

**1** Press the MENU button **13**.

**2** Press blue or green **8** to select → for "VIDEO CONNECTION" then press yellow **8**.



**3** Press blue or green to select input or output then press yellow **8**.

**4** Press blue or green repeatedly to select the desired input or output source then press OK **6**.


**5** Press the MENU button **13** to restore the normal TV picture.

**Note:** If you select 'AUTO' for output, the output source automatically becomes the same as the desired input source.

## Using AV Label Preset

This function enables you to label the input sources using up to five characters (letters or numbers).

**1** Press the MENU button **13**.

**2** Press blue or green **8** to select the symbol  on the screen then press yellow **8**.

**3** Press blue or green **8** to select 'AV LABEL PRESET' then press yellow **8**.

| AV LABEL PRESET |       |
|-----------------|-------|
| INPUT           | LABEL |
| ■ AV1           | ----- |
| RGB             | ----- |
| AV2             | ----- |
| YC2             | ----- |
| AV3             | ----- |
| YC3             | ----- |

**4** Press blue or green **8** to select the desired input source then press yellow **8**.

**5** Press blue or green **8** to select a letter or number then press yellow **8** (select '-' for a blank).  
Select other characters in the same way.

**6** After selecting all the characters, press OK **6**.







**7** Repeat steps 4 to 6 to label other input sources.

**8** Press the MENU button **13** to restore the normal TV screen.

## For Your Information

## Troubleshooting

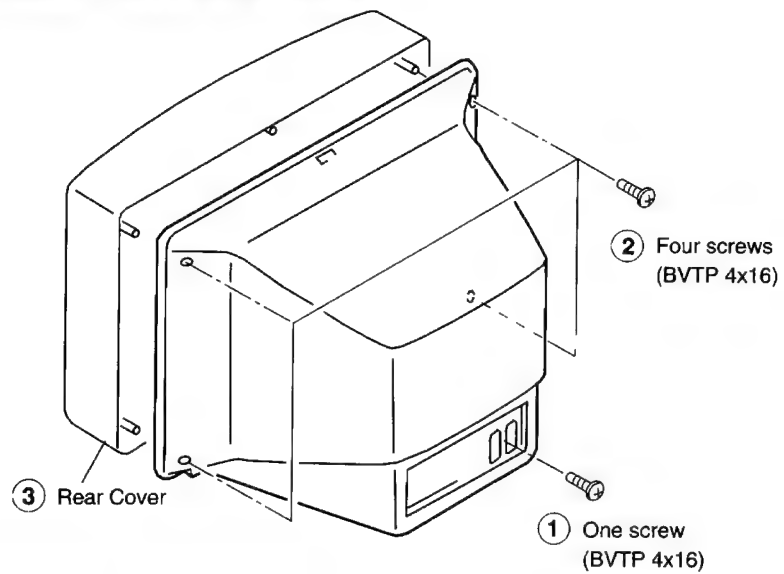
Here are some simple solutions to the problems which affect the picture and sound.

| Problem   | Solution   |
|---|--|
| No picture (screen is dark), no sound                   | <ul style="list-style-type: none"><li>• Plug the TV in.</li><li>• Press <b>1</b> <b>1</b> on the TV. (If  indicator <b>H</b> is on, press <b>0</b> <b>3</b> or a programme number <b>4</b> on the Remote Commander.)</li><li>• Check the aerial connection.</li><li>• Check if the selected video source is on.</li><li>• Turn the TV off for 3 or 4 seconds then turn it on again using <b>1</b> <b>1</b>.</li></ul> |
| Poor or no picture (screen is dark), but good sound     | <ul style="list-style-type: none"><li>• Press MENU <b>13</b> to enter the 'PICTURE CONTROL' menu and adjust 'Contrast', 'Brightness' and 'Colour'.</li></ul>   |
| Poor picture quality when watching an RGB video source. | <ul style="list-style-type: none"><li>• Press  <b>11</b> <b>E</b> repeatedly to select .</li></ul>   |
| Good picture but no sound                               | <ul style="list-style-type: none"><li>• Press  + <b>9</b> <b>F</b>.</li><li>• If  is displayed on the screen, press  <b>1</b>.</li></ul>  |
| No colour for colour programmes                         | <ul style="list-style-type: none"><li>• Press MENU <b>13</b> to enter the 'PICTURE CONTROL' menu, select 'Reset' then press OK <b>6</b>.</li></ul>   |
| Remote Commander does not function.                     | <ul style="list-style-type: none"><li>• Replace the batteries.</li></ul>   |

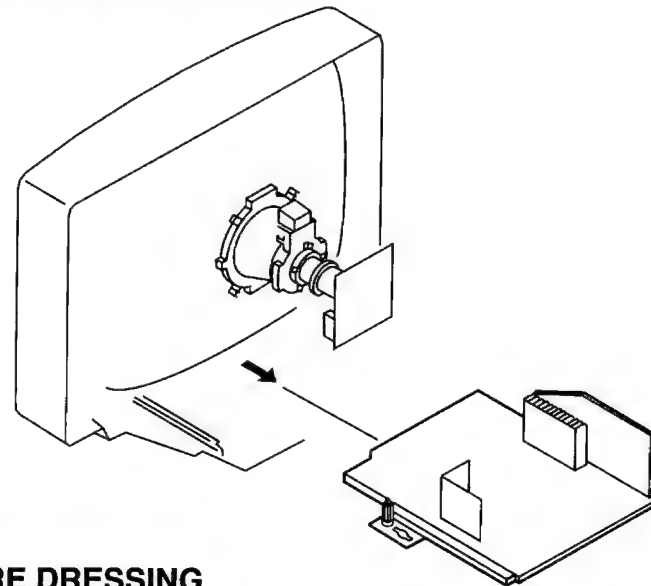
If you continue to have problems, have your TV serviced by qualified personnel.  
Never open the casing yourself.

## SECTION 2 DISASSEMBLY

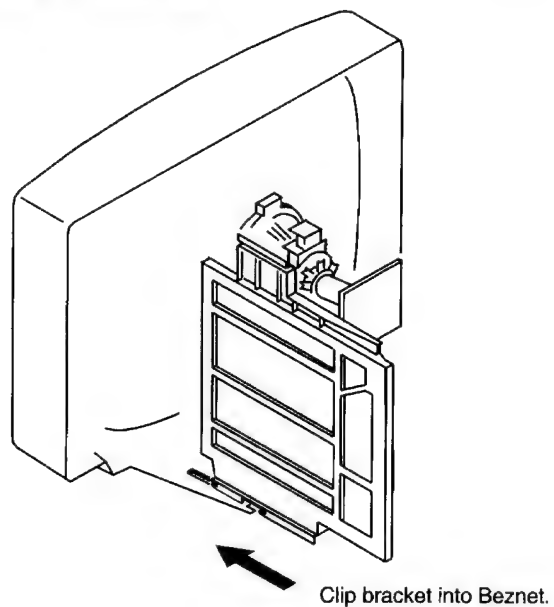
### 2-1. REAR COVER REMOVAL



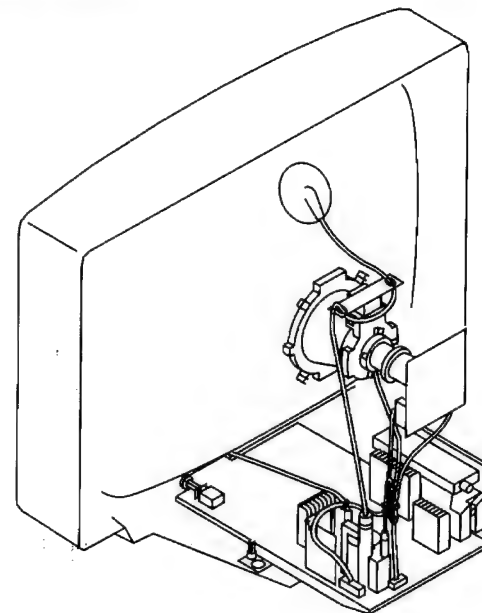
### 2-2. CHASSIS ASSY REMOVAL



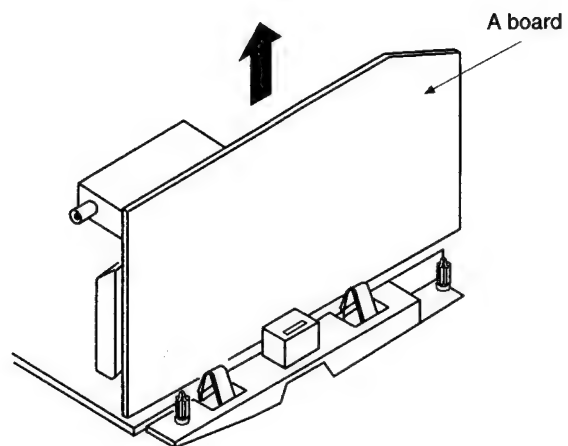
### 2-3. SERVICE POSITION



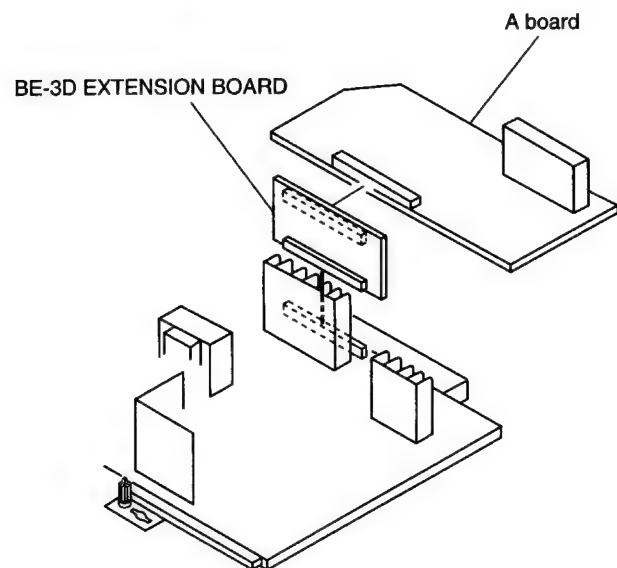
### 2-4. WIRE DRESSING



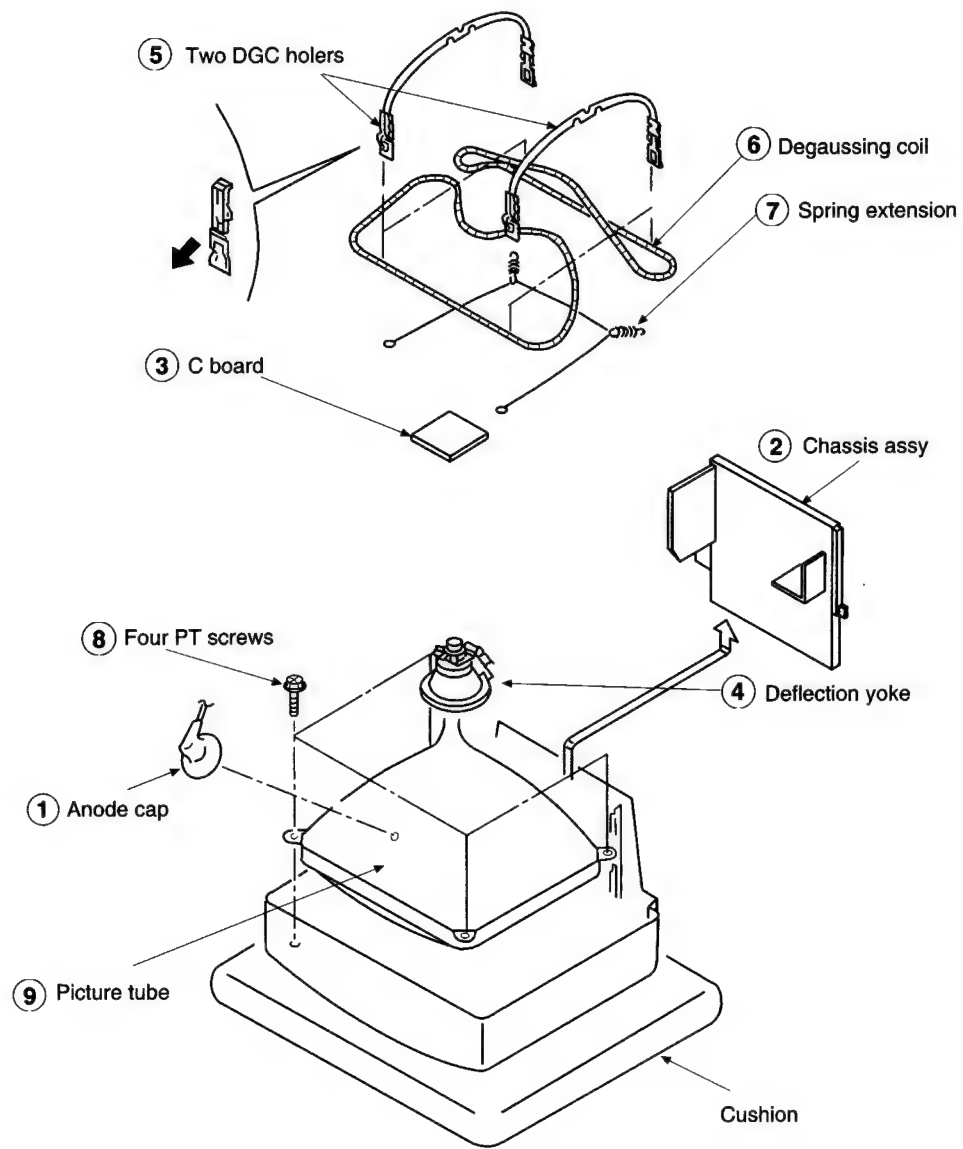
## 2-5. A BOARD REMOVAL



## 2-6. EXTENSION BOARD



## 2-7. PICTURE TUBE REMOVAL

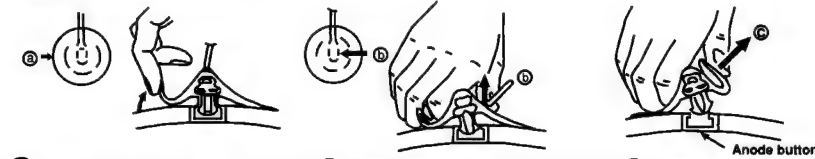




## • REMOVAL OF ANODE-CAP

**Note:** Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

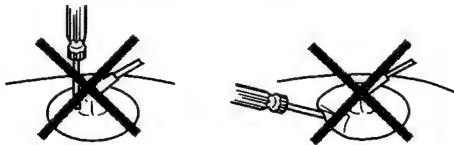
### • REMOVING PROCEDURES.



- ① Turn up one side of the rubber cap in the direction indicated by the arrow ①
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②
- ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ③

### • HOW TO HANDLE AN ANODE-CAP

- ① Don't damage the surface of anode-cap with sharp shaped material !
- ② Don't press the rubber hardly not to hurt inside of anode-caps !  
A metal fitting called as shatter-hook terminal is built into the rubber.
- ③ Don't turn the foot of rubber over hardly !  
The shatter-hook terminal will stick out or damage the rubber.



## SECTION 3

### SET - UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to these settings :

① Contrast ..... 80% (or remote control normal)  
 ☼ Brightness ..... 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

**Note:** Testing equipment required.

1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

#### Preparation:

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

#### 3-1. BEAM LANDING

1. Input the white signal with the pattern generator.  
 CONTRAST } normal  
 BRIGHTNESS }
2. Set the pattern generator raster signal to red.
3. Move the deflection yoke forward and adjust with the purity control so that the red is at the centre and the blue and the green take up equally sized areas on each side. (See Fig. 3-1 - 3-3)
4. Move the deflection yoke forward and adjust so that the entire screen becomes red. (See Fig. 3-1)
5. Switch the raster signal to blue, then to green and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig. 3-4)

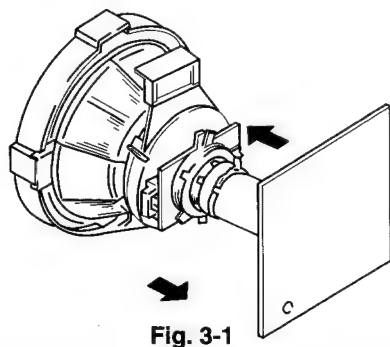


Fig. 3-1

Fig. 3-2

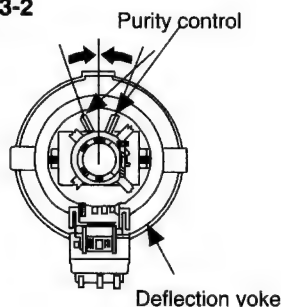


Fig. 3-3

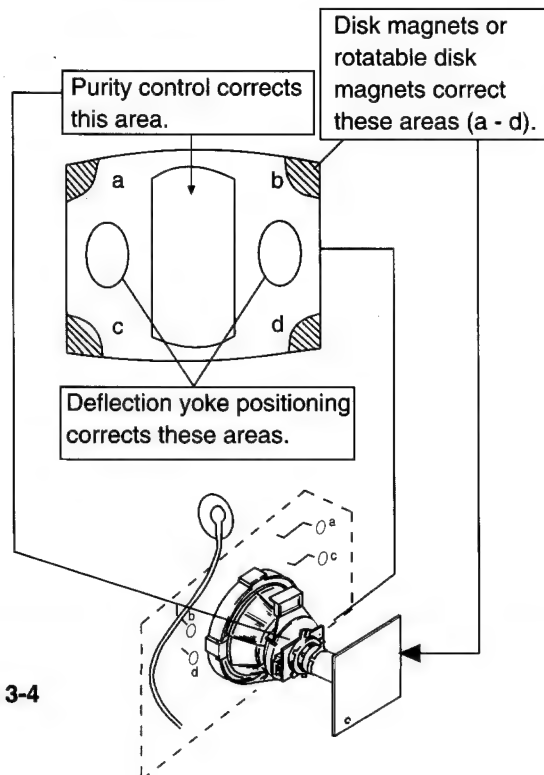
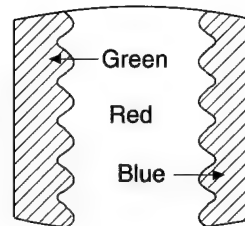


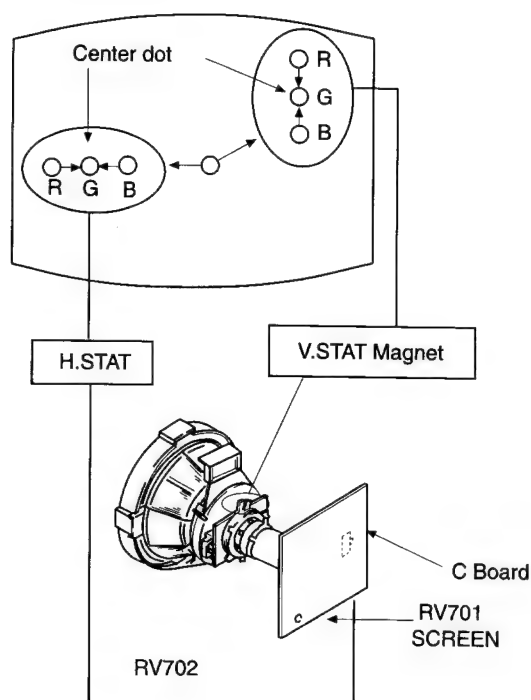
Fig. 3-4

## 3-2. CONVERGENCE

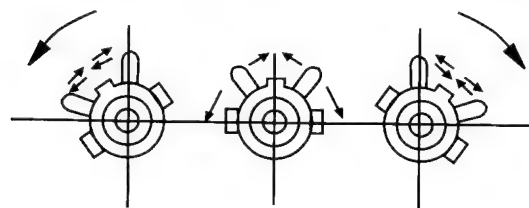
### Preparation:

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide a dot pattern.

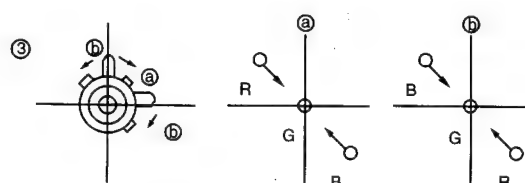
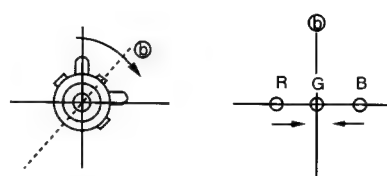
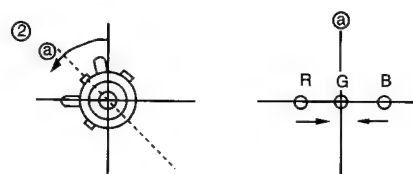
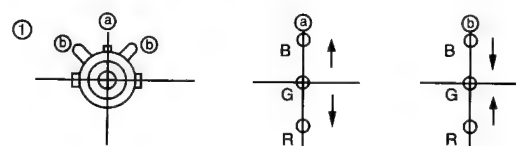
### (1) Horizontal and vertical static convergence



- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

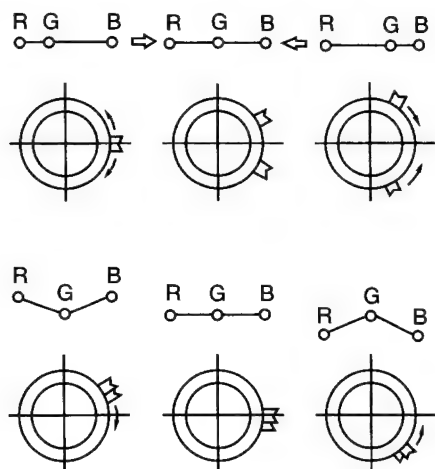


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.

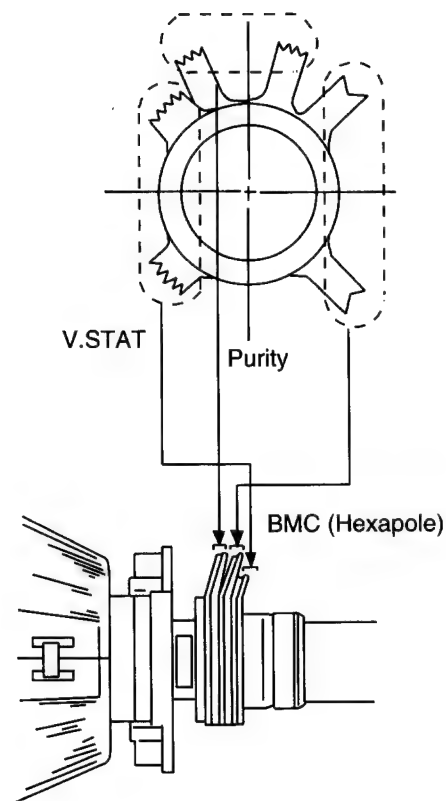


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the centre of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below. (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

- Operation of BMC (Hexapole) Magnet



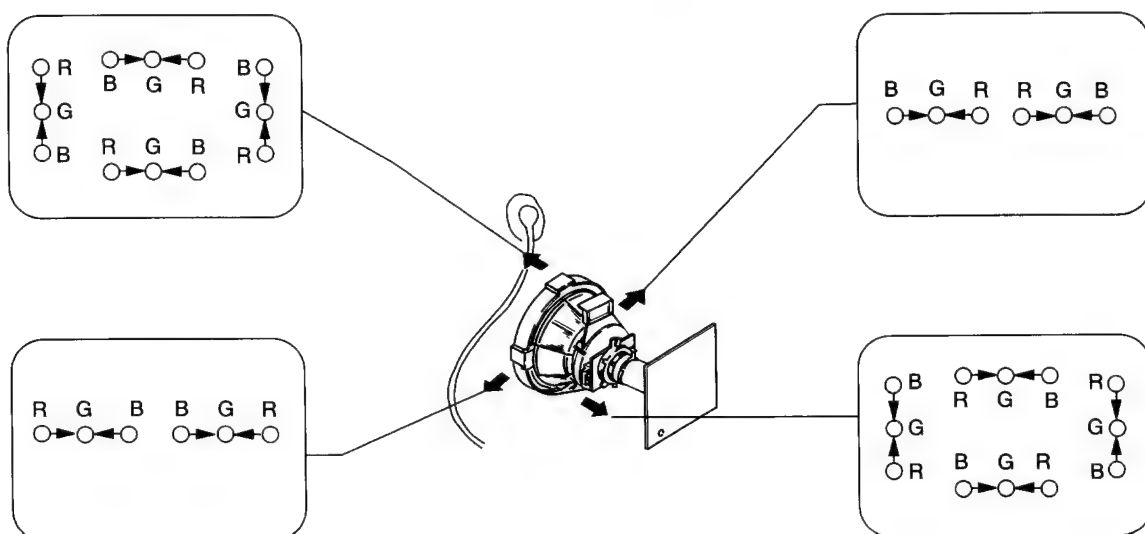
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment while tracking.  
Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the centre of the screen (by moving the dots in the horizontal direction).



## (2) Dynamic convergence adjustment.

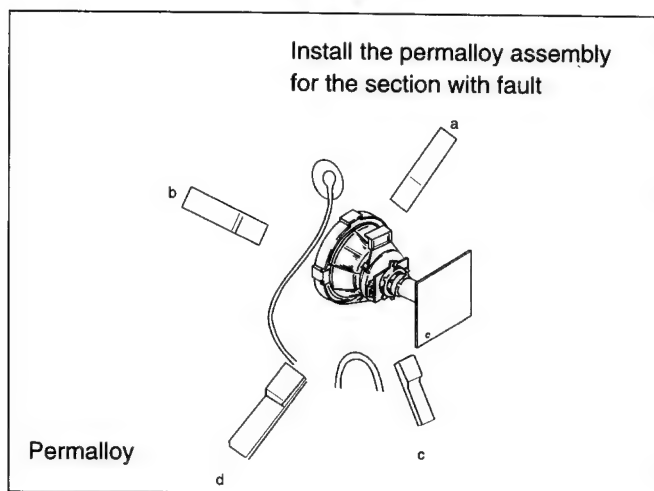
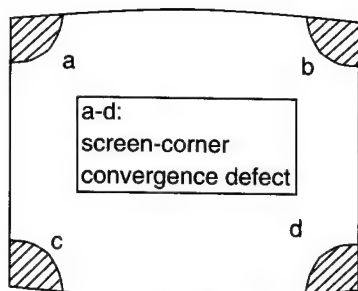
### Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
- Slightly loosen the deflection yoke screws.
  - Remove the deflection yoke spacer.
  - Move the deflection yoke as shown in the figure below and optimize the convergence.
  - Tighten the deflection yoke screws.
  - Re-install the deflection yoke spacer.



**(3) Screen corner convergence.**

If you are unable to adjust the corner convergence properly, correct them with the use of permalloy assemblies.

**3-3. WHITE BALANCE****G2 Setting**

1. Switch the set into AV mode (apply no signal to the AV connectors).
2. Connect a Volt Meter to Test Point 1 on the A board.
3. Adjust RV01 to obtain a voltage of  $3.0V \pm 0.3V$ .

**White balance adjustment**

1. Input an all white signal from the pattern generator.
2. Enter into the service mode.
3. Enter into Picture Adjustment service menu.
4. Select sub-contrast and adjust to 7.
5. Select the Green Drive and adjust so that the white balance becomes optimum.
6. Select the Blue Drive and adjust so that the white balance becomes optimum.
7. Press the TV button to return to TV operation.

**PICTURE ADJUSTMENT**

|                 |     |
|-----------------|-----|
| AFC mode        | 1   |
| REF position    | 3   |
| SCP BGR         | 1   |
| SCP BGF         | 1   |
| Trap Fo         | 7   |
| Sub contrast    | Adj |
| Sub colour      | Adj |
| Sub brightness  | Adj |
| Sub hue         | Adj |
| Green drive     | Adj |
| Blue drive      | Adj |
| Green cutoff    | Adj |
| Blue cutoff     | Adj |
| Gamma           | 0   |
| Pre / overshoot | 0   |
| Y delay         | 5   |

## SECTION 4

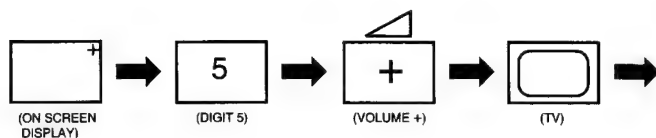
### CIRCUIT ADJUSTMENTS

#### 4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander RM-839.

##### HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set and enter into standby mode.
2. Press the following sequence of buttons on the Remote Commander.



"TT--" will appear in the top right corner of the screen. Other status information will also be displayed.

3. Press MENU on the commander to obtain the following menu on the screen.

|                      |
|----------------------|
| TEST MENU            |
| > Picture adjustment |
| Geometry             |
| Wide                 |
| MSP                  |
| IC status            |
| Current TV status    |

4. Move to the corresponding adjustment using the ↓ button on the commander.
5. Press the + button to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments are completed.

##### PICTURE ADJUSTMENT

|                 |     |
|-----------------|-----|
| AFC mode        | 1   |
| REF position    | 3   |
| SCP BGR         | 1   |
| SCP BGF         | 1   |
| Trap Fo         | 7   |
| Sub contrast    | Adj |
| Sub colour      | Adj |
| Sub brightness  | Adj |
| Sub hue         | Adj |
| Green drive     | Adj |
| Blue drive      | Adj |
| Green cutoff    | Adj |
| Blue cutoff     | Adj |
| Gamma           | 0   |
| Pre / overshoot | 0   |
| Y delay         | 5   |

##### GEOMETRY ADJUSTMENT

|              |     |
|--------------|-----|
| V Size       | Adj |
| V Position   | Adj |
| S Correction | Adj |
| V Linearity  | Adj |
| H Size       | Adj |
| H Position   | Adj |
| Pin Amp      | Adj |
| Pin Phase    | Adj |
| AFC Bow      | Adj |
| AFC Angle    | Adj |
| EHT V        | Adj |
| EHT H        | Adj |
| Corner Pin   | Adj |

##### WIDE

|                |    |
|----------------|----|
| V Aspect       | 43 |
| V Scroll       | 31 |
| Upper V Lin    | 0  |
| Lower V Lin    | 0  |
| Left Blanking  | 1  |
| Right Blanking | 11 |

**MSP**

|                     |     |
|---------------------|-----|
| AGC ON/OFF          | ON  |
| Constant gain CDB   | 0   |
| FM prescale FMP     | 36  |
| Zwei mono-st WHI    | 36  |
| Zwei st-mono WLO    | 18  |
| Zwei mono-bi WMH    | 36  |
| Zwei bi-mono WLO    | 18  |
| Time zwei WML       | 41  |
| Fawct limit         | 10  |
| Fawct soll init FAW | 12  |
| Fawer tol           | 2   |
| Nicam Err Max CCT   | 10  |
| Nicam Err Min       | 0   |
| Nicam Prescale NIP  | 97  |
| Time Nicam          | 31  |
| Carrier mute CRM    | OFF |
| Audio clock ACO     | HIZ |
| Scart prescale      | 25  |
| Scart volume        | 64  |

**IC STATUS (CXA2000 / CXA2040)****CXA2000**

|               |   |
|---------------|---|
| H lock        | 1 |
| IKR           | 1 |
| VNG           | 0 |
| X-RAY         | 0 |
| Colour system | 3 |
| CV1 Sync      | 1 |

**CXA2040**

|             |    |
|-------------|----|
| Sync sep    | 1  |
| S1 mode pin | 01 |
| S2 mode pin | 01 |

**TUNER**

|              |          |
|--------------|----------|
| Tuner status | 01101011 |
|--------------|----------|

**TV STATUS**

|                   |                   |
|-------------------|-------------------|
| Text system       | C TEXT/TV TEXT    |
| Dolby             | NO/YES            |
| Text language set | WEST/EAST/RUSSIAN |
| Menu language set | WEST/EAST/RUSSIAN |
| Destination       | B/D/U/K/L/E/A/R   |
| Scart 16:9        | OFF/ON            |
| RGB priority      | OFF/ON            |
| Ageing            | OFF/ON            |
| Size              | 29/25             |
| Colour trap sw    | SECAM/ALL         |
| Velocity mod      | ON/OFF            |
| AFT STATUS        | WINDOW/HIGH/LOW   |

**SUB BRIGHTNESS ADJUSTMENT**

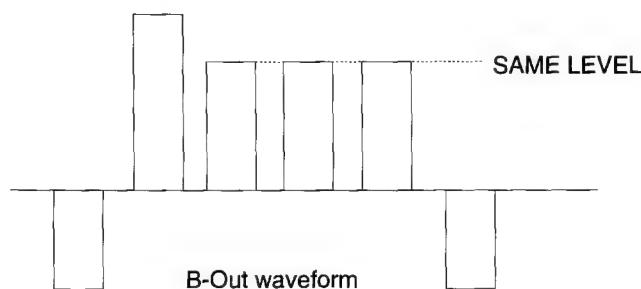
1. Input a Phillips pattern.
2. Set the picture control to minimum.
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the Sub-Brightness data so that there is barely a difference between the 0 IRE and 10 IRE signal.

**SUB CONTRAST ADJUSTMENT**

1. Input a video that contains a small 100% area on a black background.
2. Set the picture control to maximum.
3. Connect an oscilloscope to pin 3 of CN301 (A board).
4. Enter into the Picture Adjustment Service Menu.
5. Adjust the Sub-contrast data to obtain a black to white amplitude of 2.50 volts.

**SUB COLOUR ADJUSTMENT**

1. Receive a PAL Colour Bar video signal.
2. Connect an oscilloscope to pin 3 of CN301 (A board).
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the sub colour data so that cyan, magenta and blue colour bars are of equal height.



NOTE: The data shown in the TV STATUS table is dependant on destination, screen size and country.

**SYSTEM B/G, D/K, I & L I.F ADJUSTMENT**

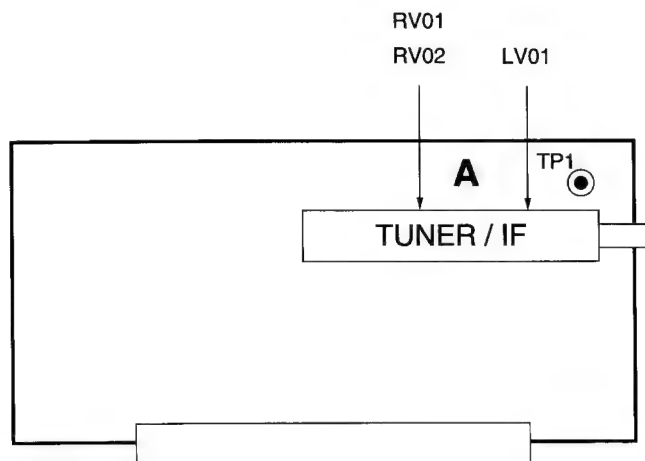
1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 " ) to fix the I.F frequency to 38.9 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the I.F coil (LV01) until the "AFT Status" indicates a " Window " condition.

**SYSTEM L BAND 1 I.F ADJUSTMENT**

1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 " ) to fix the I.F frequency to 34.2 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the RV02 until the "AFT Status" indicates a " Window " condition.

**TUNER AGC ADJUSTMENT**

1. Receive a signal of 63dBuV / 75 ohm terminated via the tuner socket.
2. Measure the voltage at test point 1 (A board).
3. Adjust RV01 to obtain a voltage of  $3.0V \pm 0.3V$ .



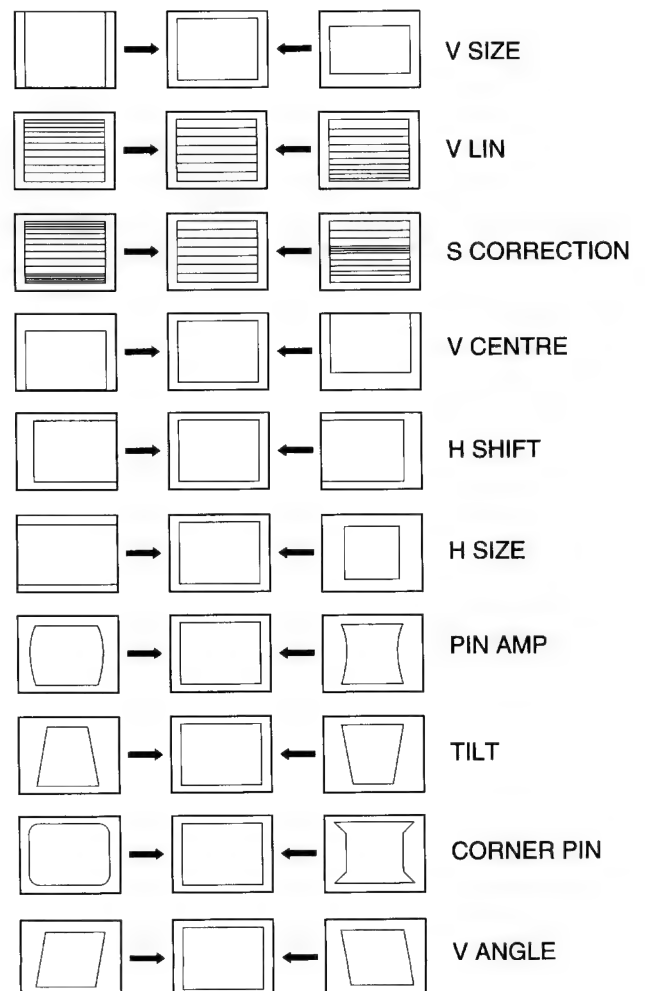
- A Board component side -

**DEFLECTION SYSTEM ADJUSTMENT**

1. Enter into the Geometry Adjustment Service Menu.
2. Select and adjust each item in order to obtain the optimum image.

**GEOMETRY ADJUSTMENT**

|              |     |
|--------------|-----|
| V Size       | Adj |
| V Position   | Adj |
| S Correction | Adj |
| V Linearity  | Adj |
| H Size       | Adj |
| H Position   | Adj |
| Pin Amp      | Adj |
| Pin Phase    | Adj |
| AFC Bow      | Adj |
| AFC Angle    | Adj |
| EHT V        | Adj |
| EHT H        | Adj |
| Corner Pin   | Adj |





## 4-2. TEST MODE 2:

Is available by pressing Test button twice, OSD " TT " appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode.

|    |                             |
|----|-----------------------------|
| 00 | Switch test mode 2 off      |
| 01 | Picture maximum             |
| 02 | Picture minimum             |
| 03 | Volume 30%                  |
| 04 | Set service menu mode       |
| 05 | Set production menu mode    |
| 06 | Volume 80%                  |
| 07 | Set ageing condition        |
| 08 | Set shipping condition      |
| 09 | Language reset              |
| 10 | No function                 |
| 11 | Adjustment without OSD      |
| 12 | Dummy                       |
| 13 | Display TV configuration    |
| 14 | Forced AV 6:9 mode          |
| 15 | Reset LPM from ROM data     |
| 16 | copy LPM to reset memory    |
| 17 | Preset label for AV sources |
| 18 | RGB priority on/off         |
| 19 | Clear all preset labels     |
| 20 | No function                 |
| 21 | Sub contrast                |
| 22 | Sub colour                  |
| 23 | Sub brightness              |
| 24 | Set destination = U         |
| 25 | Set destination = D         |
| 26 | Set destination = B         |
| 27 | Set destination = K         |
| 28 | Set destination = L         |
| 29 | Set destination = E         |
| 30 | No function                 |
| 31 | Set destination =A          |
| 32 | Dummy                       |
| 33 | Auto AGC                    |
| 34 | Dummy                       |
| 35 | Manual AGC adjust           |

|       |                                      |
|-------|--------------------------------------|
| 36-40 | Dummy                                |
| 41    | Re-initialise NVM                    |
| 42    | Production use only                  |
| 43    | Initialise geometry settings         |
| 44    | Initialise all favourite pages = 100 |
| 45    | Channel locks = off                  |
| 46    | Dealer commander mode                |
| 47    | Default MSP settings                 |
| 48    | Restore NVM test byte                |
| 49    | Delete NVM test byte                 |
| 50-60 | No function                          |
| 61    | Turn on Dolby Pro Logic mode         |
| 62    | White noise to left speaker          |
| 63    | White noise to right speaker         |
| 64    | White noise to centre speaker        |
| 65    | White noise to rear speaker          |
| 66    | Set standard stereo mode             |
| 67    | Set Pro Logic normal mode            |
| 68    | Set Pro Logic wide mode              |
| 69    | Set Pro Logic phantom mode           |
| 70    | No function                          |
| 71    | Picture rotation on/off              |
| 72    | Dolby register settings              |
| 74    | No function                          |
| 75    | Reset picture colour balance         |
| 76    | Reset picture geometry               |
| 77    | Reset sound settings                 |
| 78    | Reset error codes in the NVM         |
| 79-99 | No function                          |

### 4-3. BE-3D SELF DIAGNOSTIC SOFTWARE

The identification of errors within the BE-3D chassis is triggered in 1 of 2 ways :- 1: Bus busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the led (Series of flashes which must be counted) See Table 1, non fatal errors are reported with this method.

**Table 1**

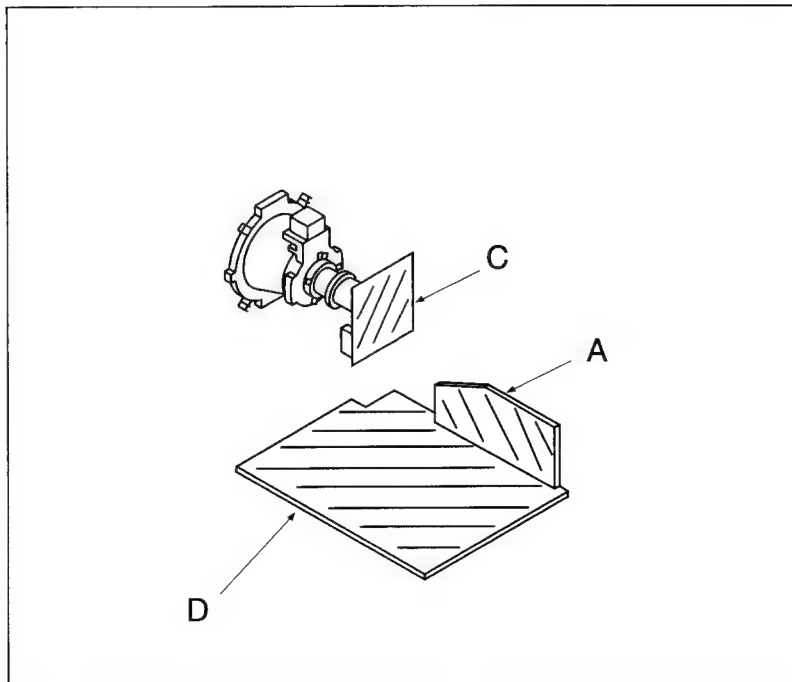
| ERROR   | LED ERROR COUNT |
|---|-----------------|
| Protection circuit trip < ANY TIME >                      | 02              |
| IIC SCL LOW < POWER UP ONLY >                             | 03              |
| IIC SDA LOW < POWER UP ONLY >                             | 04              |
| IIC SDA & SCL LOW < POWER UP ONLY >                       | 05              |
| Jungle/Chroma controller no acknowledge < POWER UP ONLY > | 06              |
| Video Switch no acknowledge < POWER UP ONLY >             | 07              |
| Tuner no acknowledge                                      | 08              |
| MSP no acknowledge  | 09              |
| NVM no acknowledge  | 10              |
| M3L TXD LOW < POWER UP ONLY >                             | 11              |
| M3L RXD LOW < POWER UP ONLY >                             | 12              |
| M3L ENABLE LOW < POWER UP ONLY >                          | 13              |
| M3L TXD & RXD LOW < POWER UP ONLY >                       | 14              |
| Compact Text test fail < POWER UP ONLY >                  | 15              |
| AV switch cannot power on reset                           | 16              |
| Cannot initialise jungle                                  | 17              |
| NVM acknowledge fail after initialisation                 | 18              |
| Multiple devices with no acknowledge < POWER UP ONLY >    | 19              |
| Compacttext run-time failure                              | 20              |
| AVSWITCH response failure after power up                  | 21              |
| JUNGLE/CHROMA controller response failure after power up  | 22              |
| CompactText does not respond                              | 23              |

Flash Timing Example : e.g. error number 3.

Stby LED



## 5-2. CIRCUIT BOARDS LOCATION



## 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

### Note :

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$   
50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.  
k = 1000 , M = 1000K
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm

Rating electrical power  $\frac{1}{4}$  W

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth - ground.
- : earth - chassis.
- : no mounted.

**Note :** The components identified by shading and marked are critical for safety. Replace only with the part number specified.

**Note :** Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

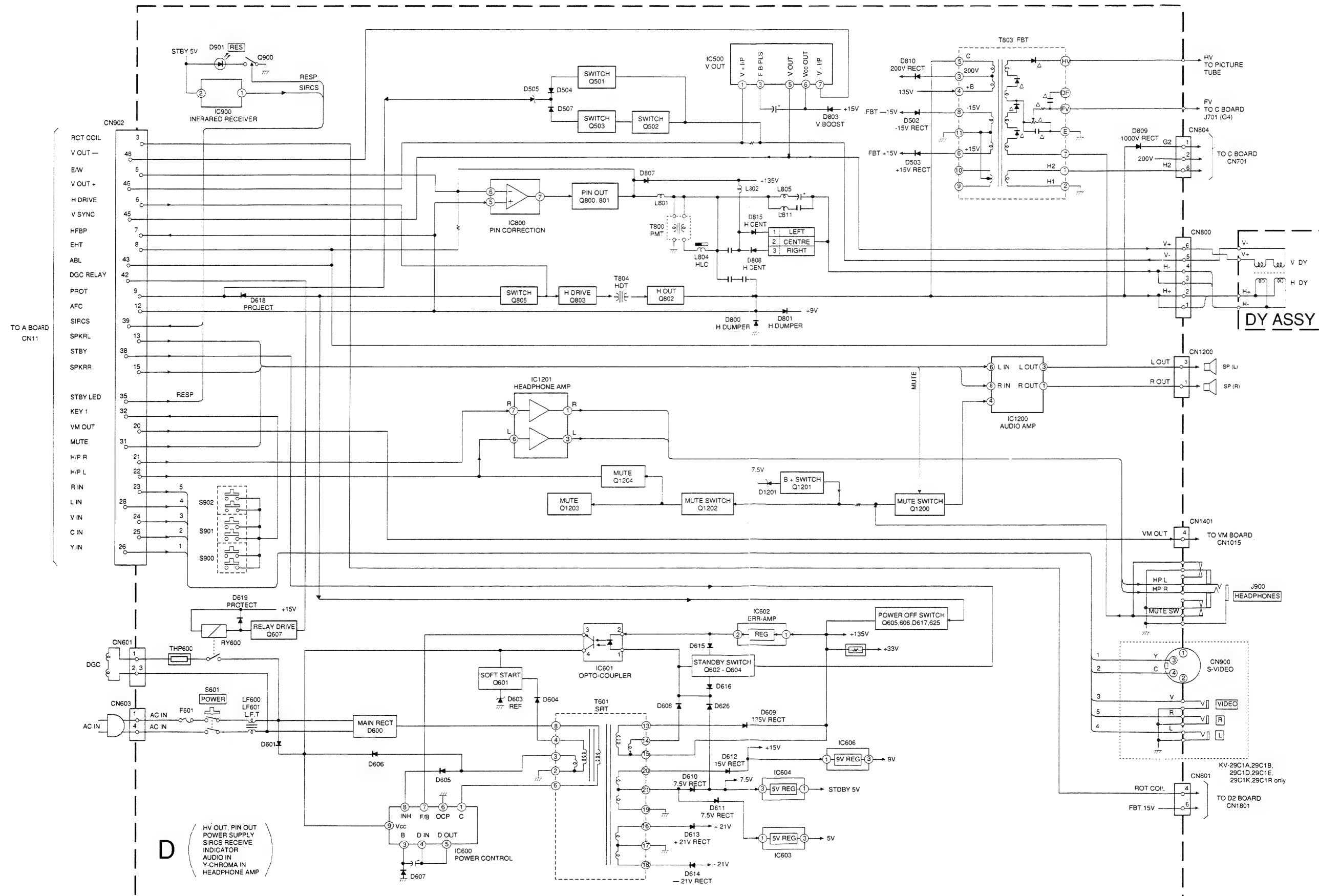
### Reference information

|           |         |                          |
|-----------|---------|--------------------------|
| RESISTOR  | : RN    | METAL FILM               |
|           | : RC    | SOLID                    |
|           | : FPRD  | NONFLAMMABLE CARBON      |
|           | : FUSE  | NONFLAMMABLE FUSIBLE     |
|           | : RS    | NONFLAMMABLE METAL OXIDE |
|           | : RB    | NONFLAMMABLE CEMENT      |
|           | : RW    | NONFLAMMABLE WIREWOUND   |
| COIL      | : X     | ADJUSTABLE RESISTOR      |
|           | : LF-8L | MICRO INDUCTOR           |
| CAPACITOR | : TA    | TANTALUM                 |
|           | : PS    | STYROL                   |
|           | : PP    | POLYPROPYLENE            |
|           | : PT    | MYLAR                    |
|           | : MPS   | METALIZED POLYESTER      |
|           | : MPP   | METALIZED POLYPROPYLENE  |
|           | : ALB   | BIPOLAR                  |
|           | : ALT   | HIGH TEMPERATURE         |
|           | : ALR   | HIGH RIPPLE              |

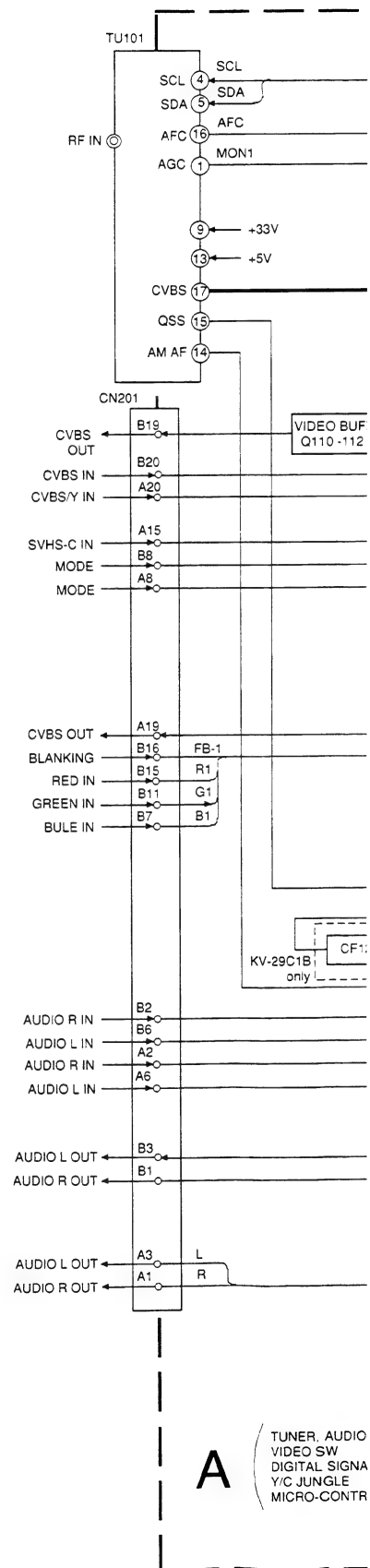
- Readings are taken with a colour-bar signal input.
- Readings are taken with 10M $\Omega$  digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

## DIAGRAMS

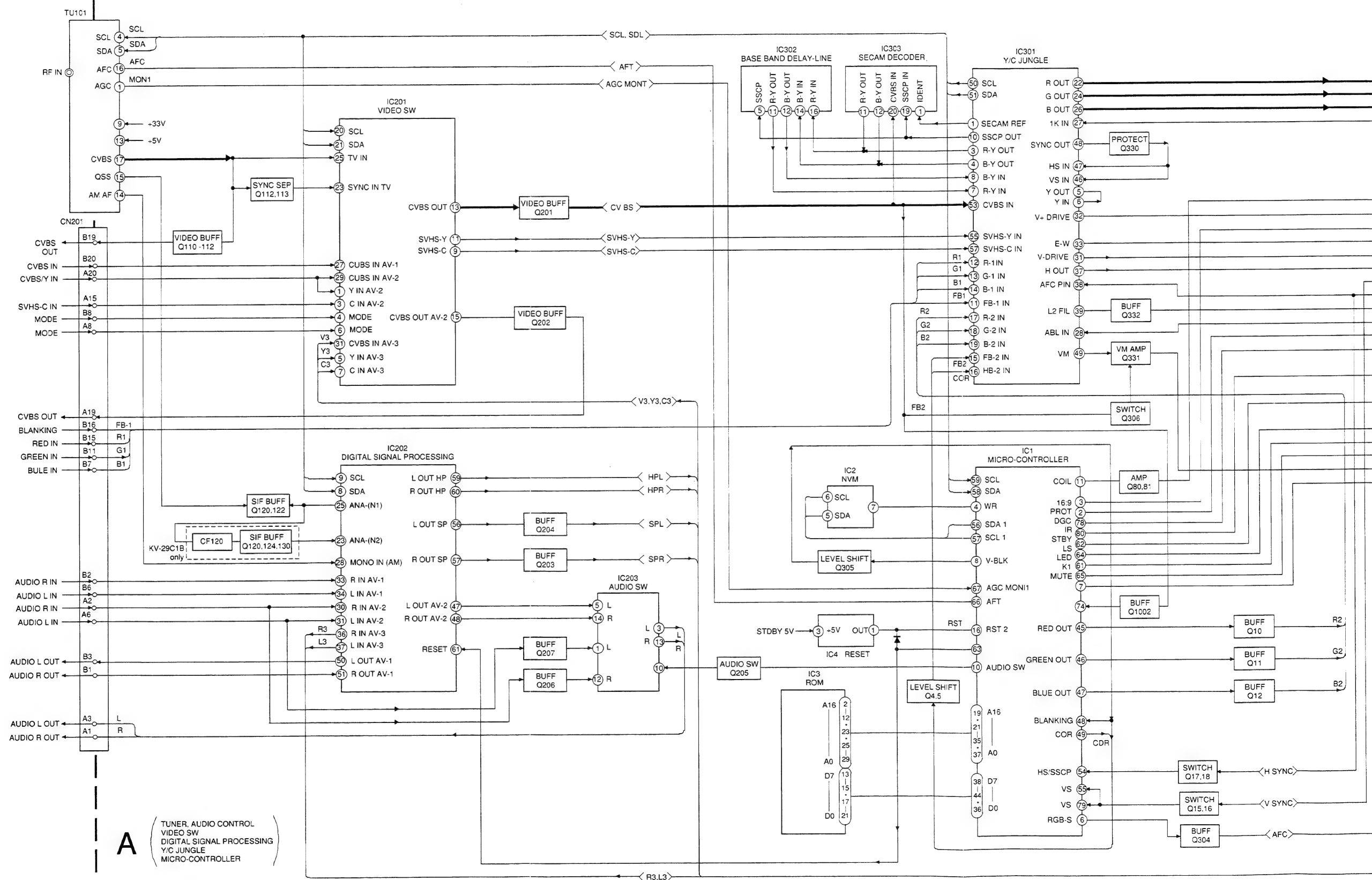
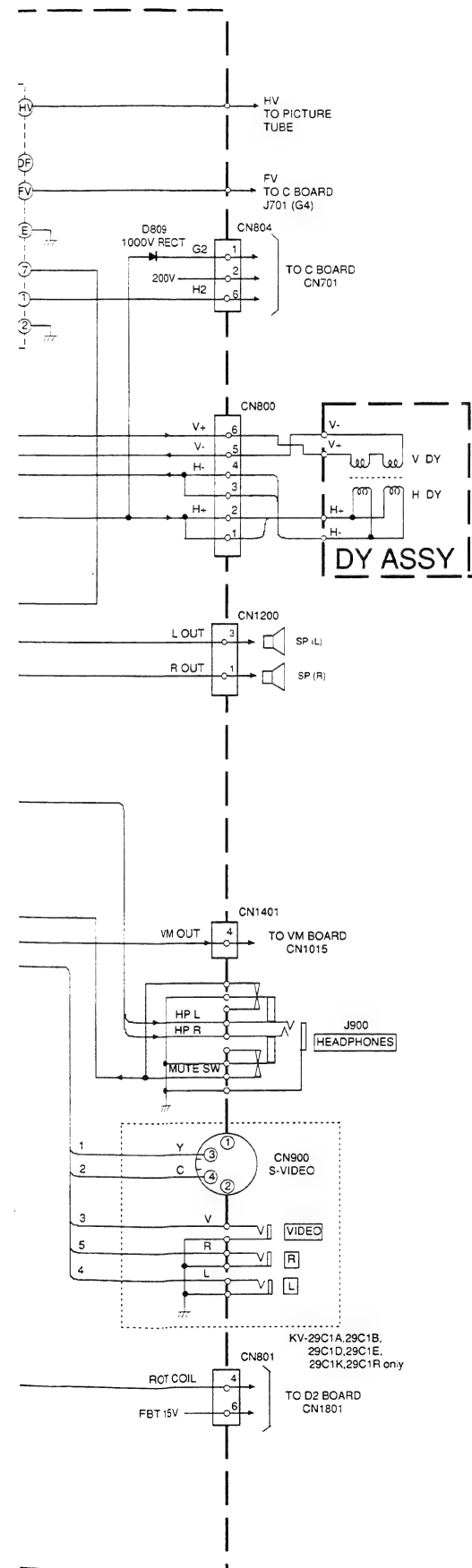
### 5-1. BLOCK DIAGRAM (1)

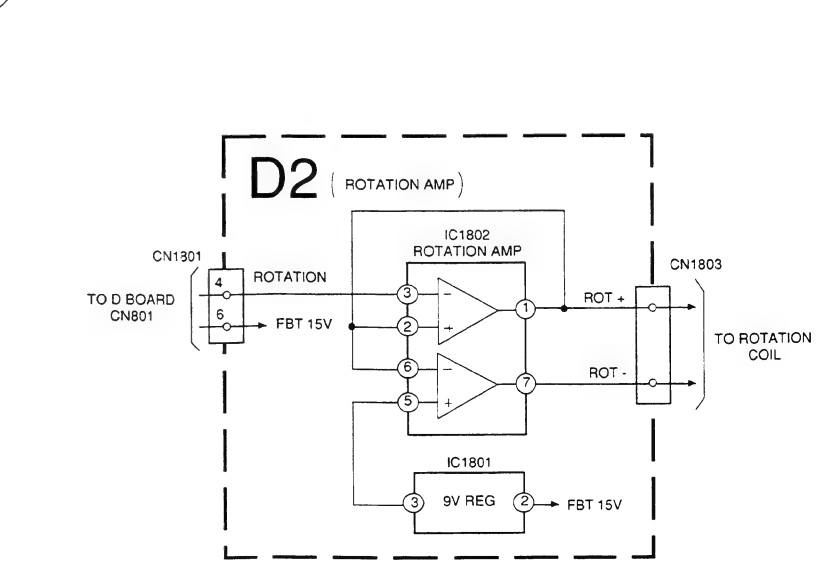
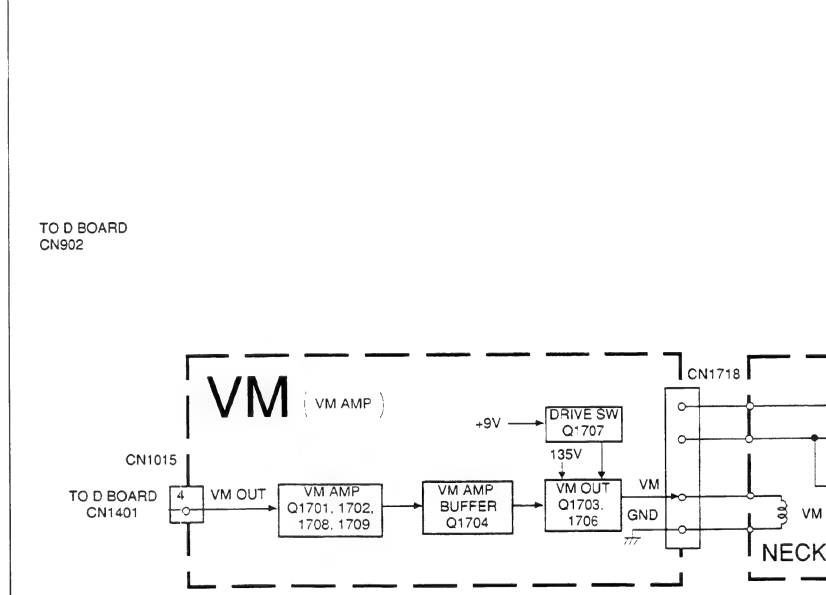
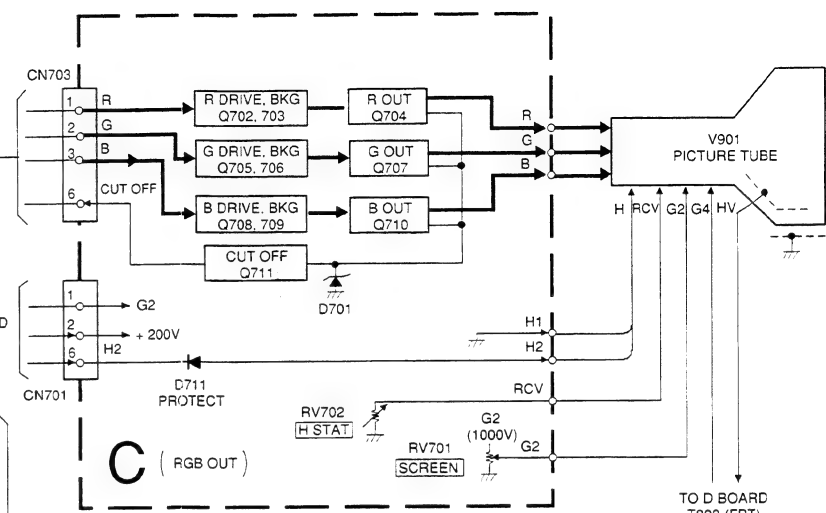
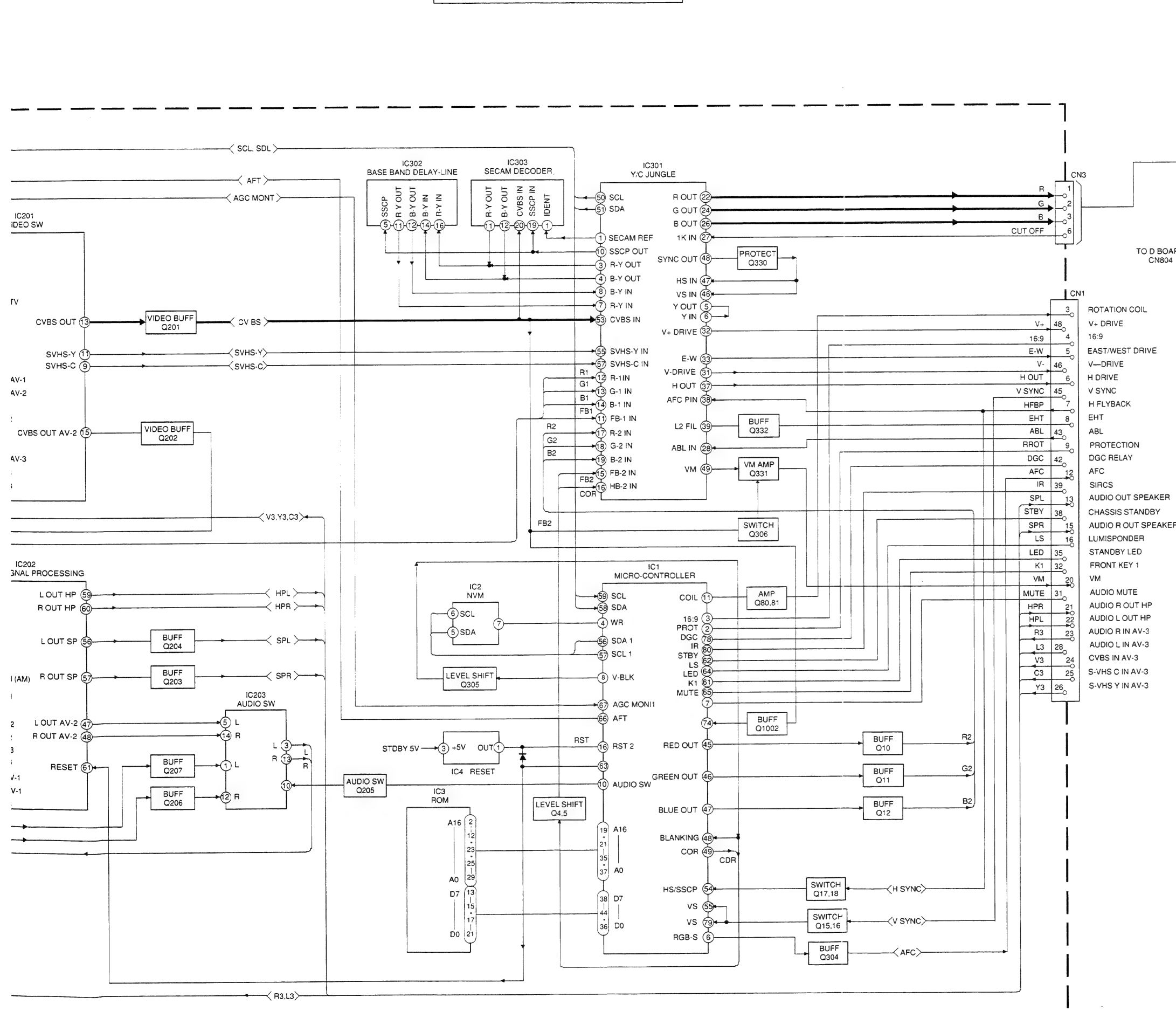


### BLOCK DIAGRAM

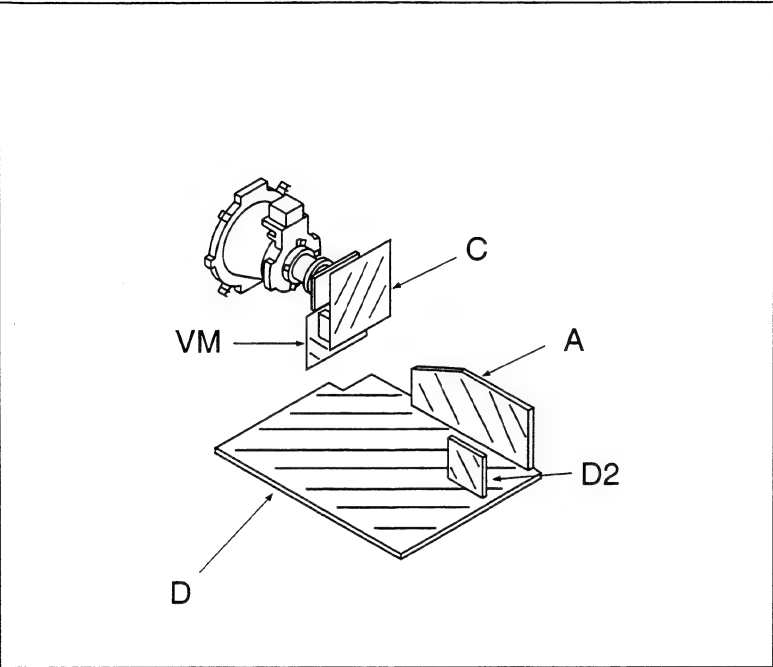


## BLOCK DIAGRAM (2)





5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.  
 $k = 1000$ ,  $M = 1000K$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm  
Rating electrical power  $\frac{1}{4}$  W

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth - ground.
- : earth - chassis.
- : no mounted.

Note : The components identified by shading and marked are critical for safety. Replace only with the part number specified.

Note : Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

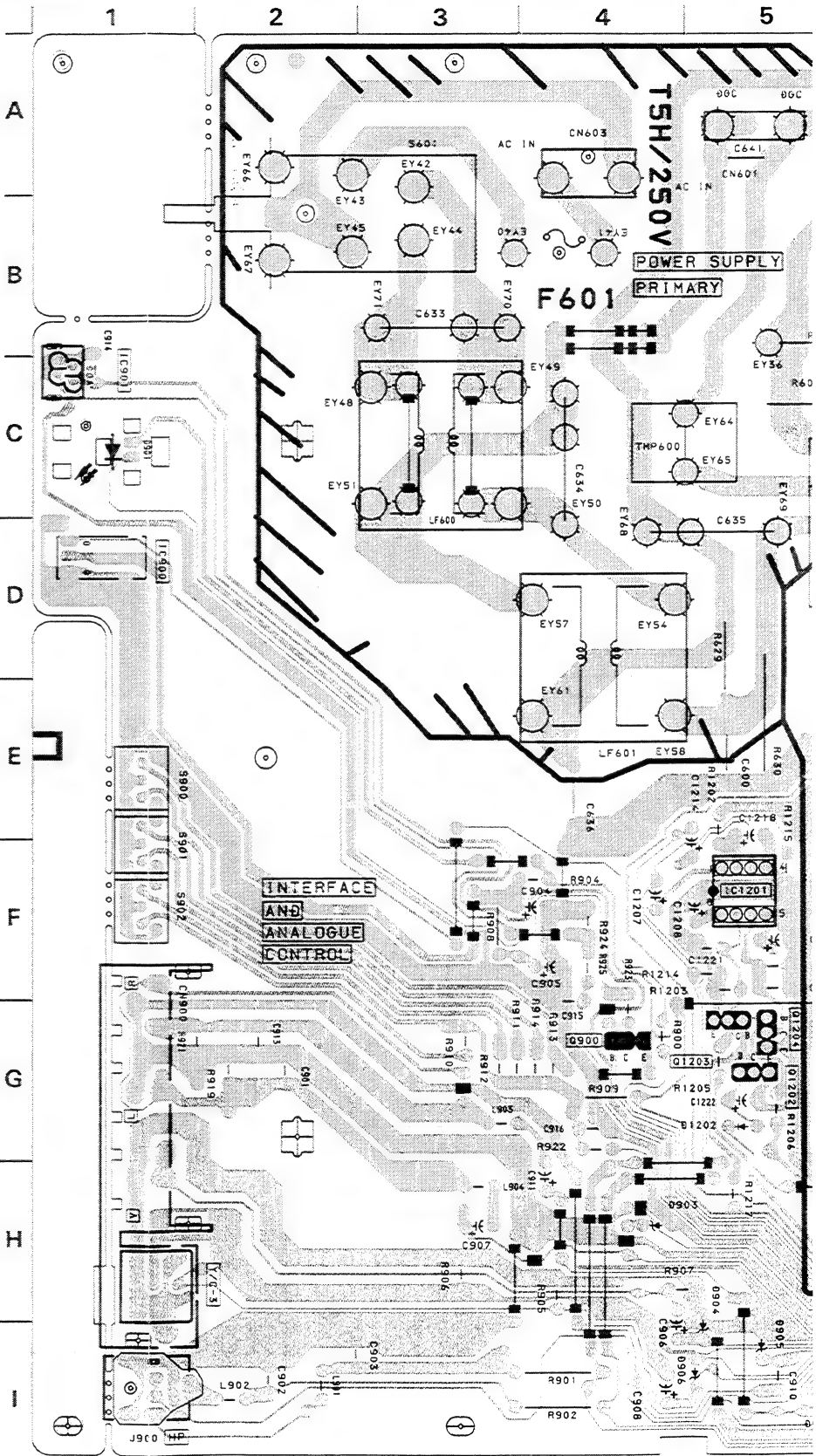
Reference information

|           |         |                          |
|-----------|---------|--------------------------|
| RESISTOR  | : RN    | METAL FILM               |
|           | : RC    | SOLID                    |
|           | : FPRD  | NONFLAMMABLE CARBON      |
|           | : FUSE  | NONFLAMMABLE FUSIBLE     |
|           | : RS    | NONFLAMMABLE METAL OXIDE |
|           | : RB    | NONFLAMMABLE CEMENT      |
|           | : RW    | NONFLAMMABLE WIREWOUND   |
|           | : X     | ADJUSTABLE RESISTOR      |
| COIL      | : LF-8L | MICRO INDUCTOR           |
|           | : TA    | TANTALUM                 |
| CAPACITOR | : PS    | STYROL                   |
|           | : PP    | POLYPROPYLENE            |
|           | : PT    | MYLAR                    |
|           | : MPS   | METALIZED POLYESTER      |
|           | : MPP   | METALIZED POLYPROPYLENE  |
|           | : ALB   | BIPOLAR                  |
|           | : ALT   | HIGH TEMPERATURE         |
|           | : ALR   | HIGH RIPPLE              |

- Readings are taken with a colour-bar signal input.
- Readings are taken with 10M $\Omega$  digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

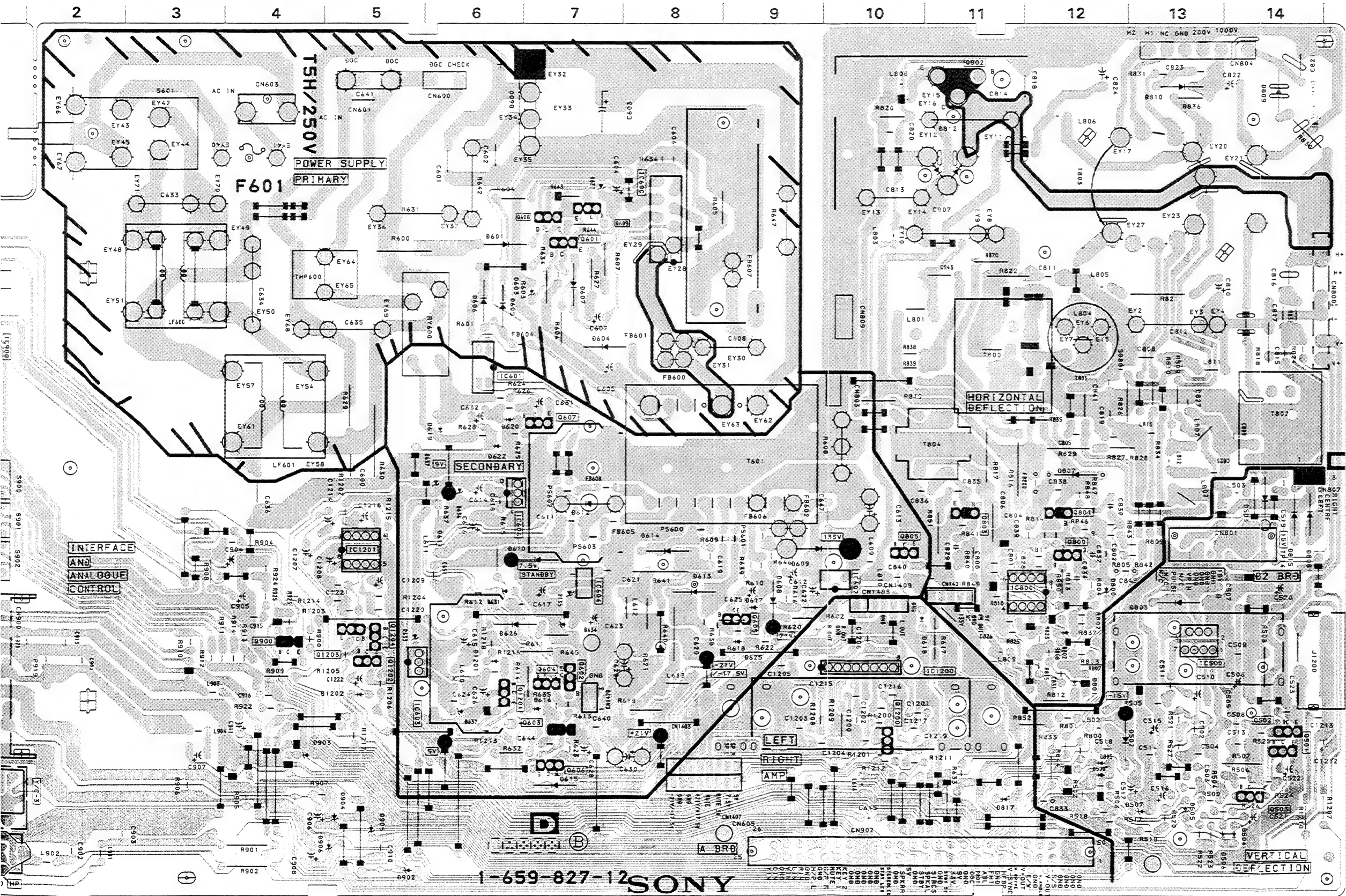
D [ HV CUT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN Y-CHROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICAITON ]

D Board





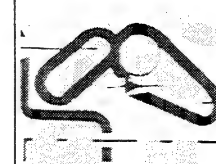
UT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN  
ROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICAITON



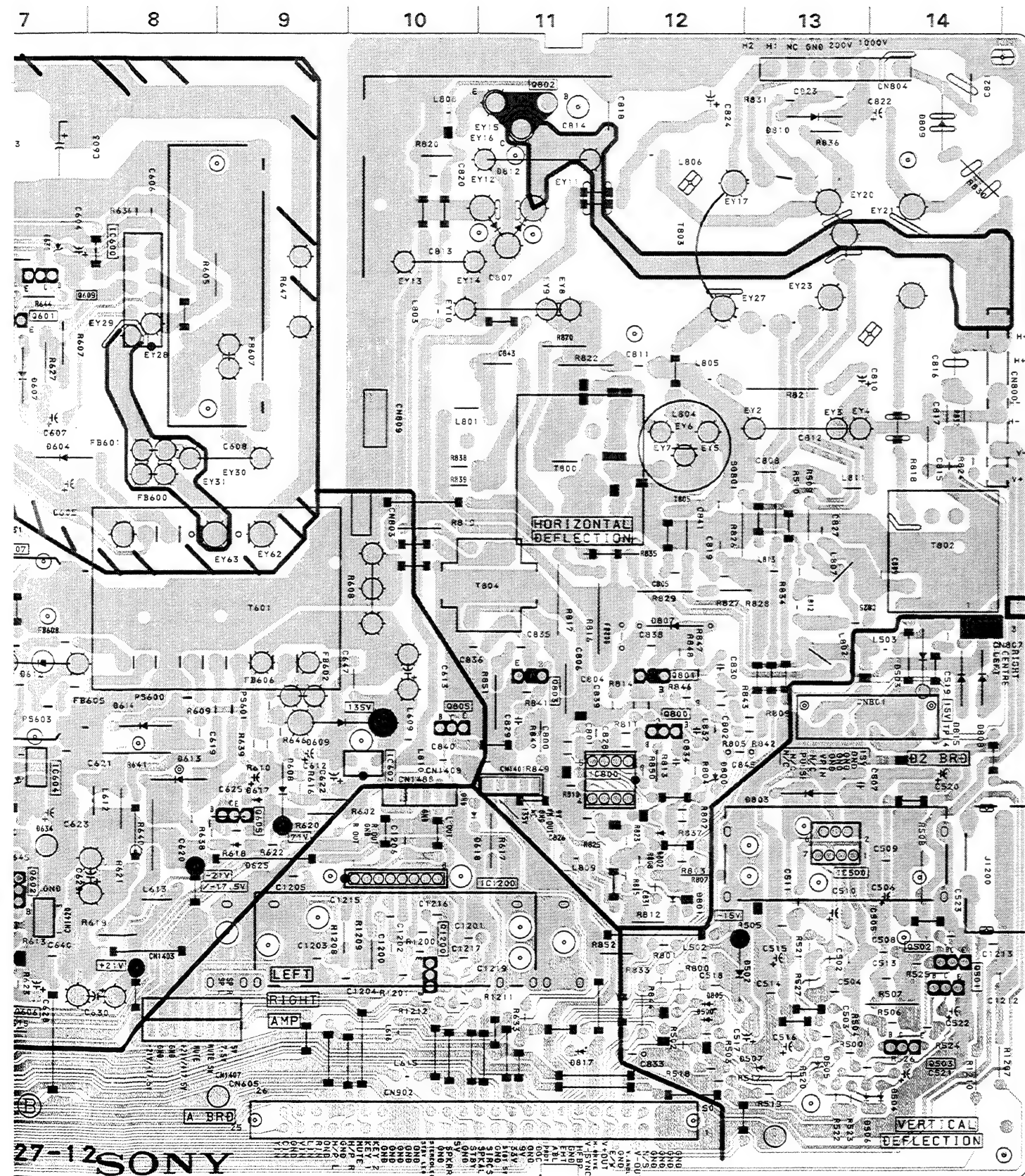
D BOARD

| IC      |
|---------|
| IC500   |
| IC600   |
| IC601   |
| IC602   |
| IC603   |
| IC604   |
| IC606   |
| IC800   |
| IC900   |
| IC1200  |
| IC1201  |
| TRANSIS |
| Q501    |
| Q502    |
| Q503    |
| Q601    |
| Q602    |
| Q603    |
| Q604    |
| Q605    |
| Q606    |
| Q607    |
| Q800    |
| Q801    |
| Q802    |
| Q803    |
| Q805    |
| Q900    |
| Q1200   |
| Q1201   |
| Q1202   |
| Q1203   |
| Q1204   |
| DIOD    |
| D500    |
| D502    |
| D503    |
| D504    |
| D505    |
| D506    |
| D507    |



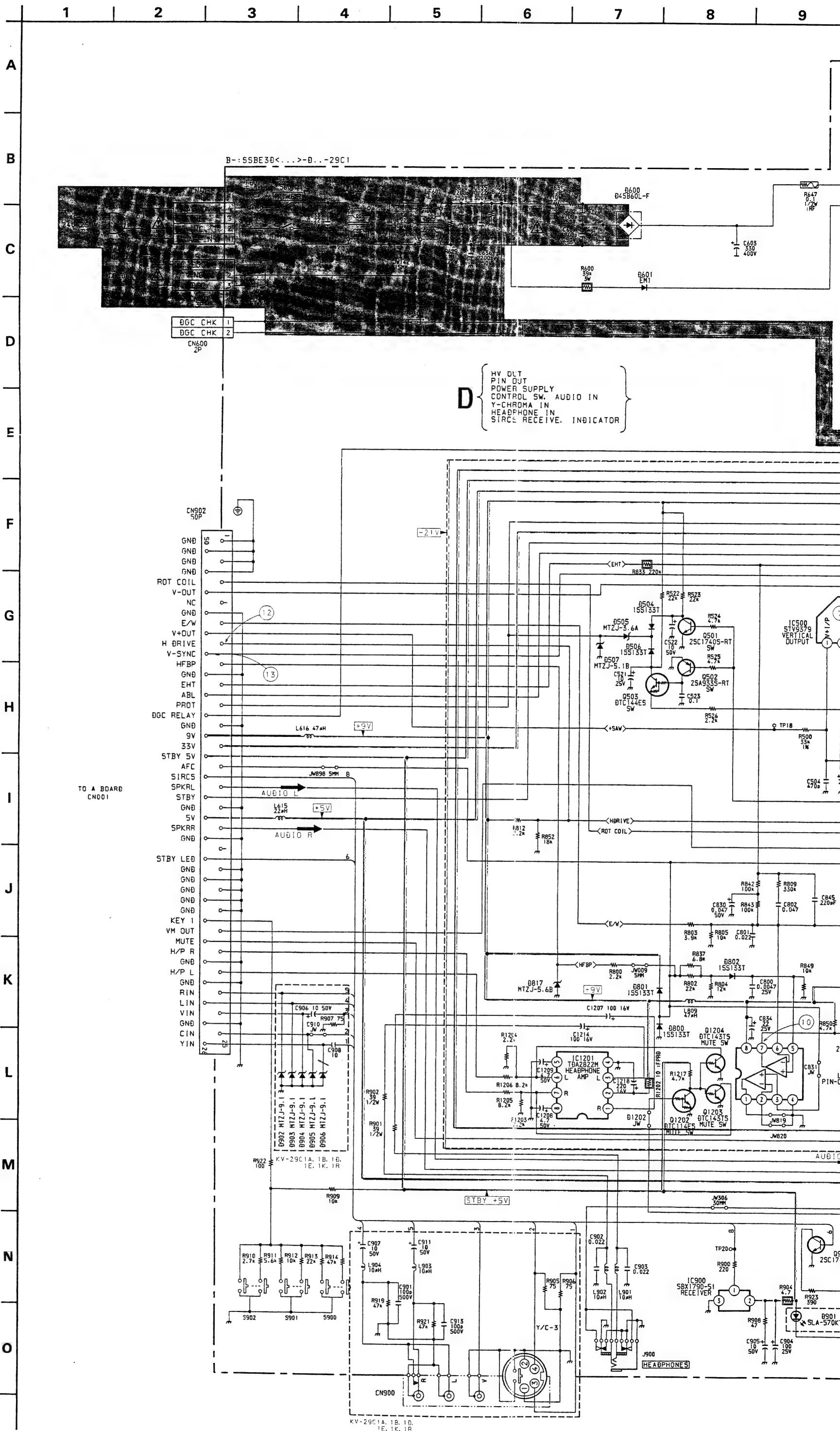


**NOTE:**  
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

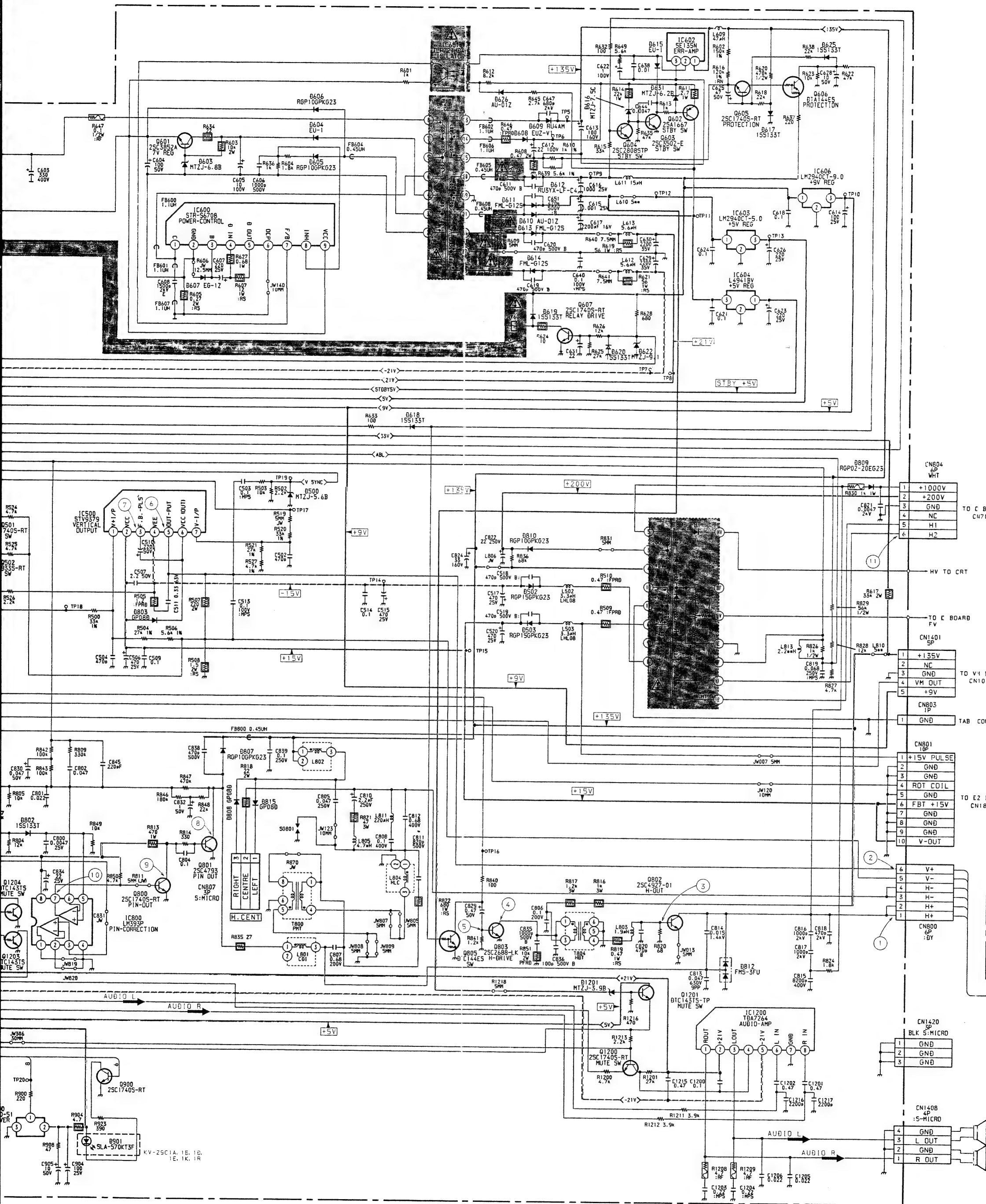


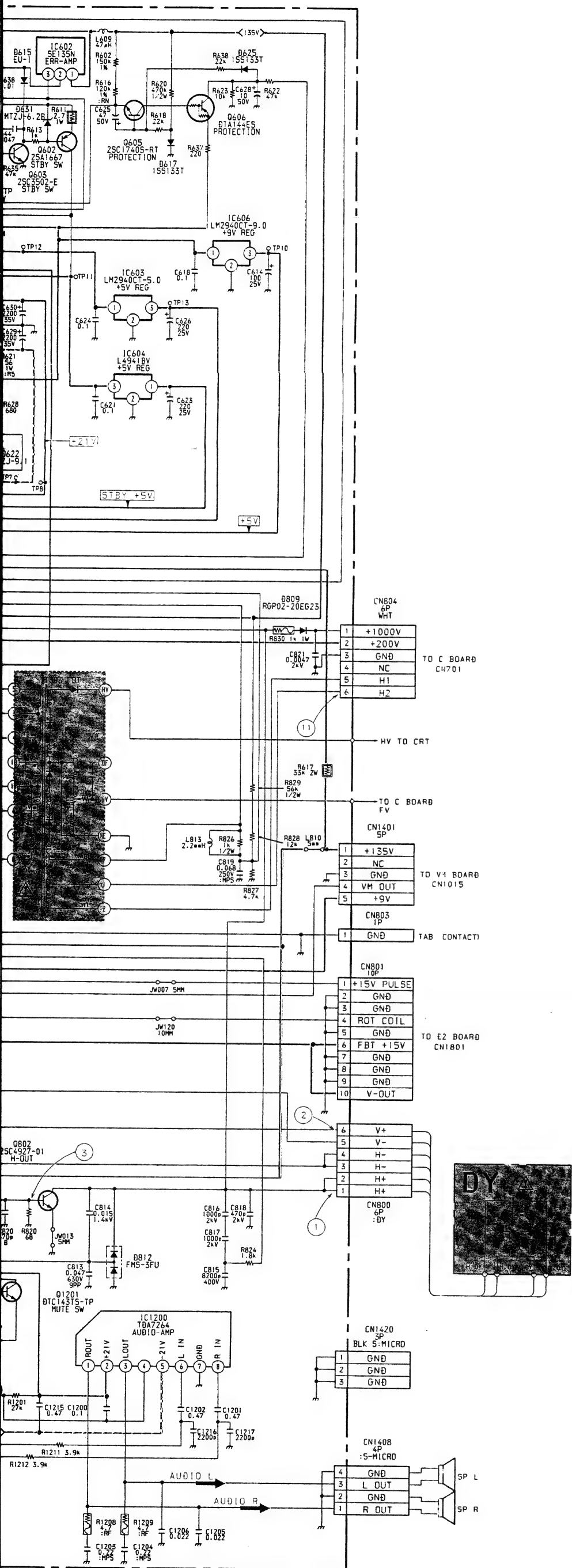
#### D BOARD

| IC         |      | DIODE |      |
|------------|------|-------|------|
| IC500      | G-13 | D600  | A-7  |
| IC600      | B-8  | D601  | C-6  |
| IC601      | D-6  | D603  | C-7  |
| IC602      | F-10 | D604  | D-7  |
| IC603      | G-5  | D605  | C-6  |
| IC604      | F-7  | D606  | C-6  |
| IC606      | E-6  | D607  | C-7  |
| IC800      | F-12 | D608  | F-9  |
| IC900      | D-1  | D609  | F-9  |
| IC1200     | G-10 | D610  | F-7  |
| IC1201     | F-5  | D611  | F-6  |
|            |      | D612  | E-7  |
|            |      | D613  | F-8  |
| TRANSISTOR |      | D614  | F-8  |
| Q501       | H-14 | D615  | H-7  |
| Q502       | H-14 | D616  | G-7  |
| Q503       | H-14 | D617  | F-9  |
| Q601       | C-7  | D618  | F-11 |
| Q602       | G-7  | D619  | E-6  |
| Q603       | H-7  | D620  | E-6  |
| Q604       | G-7  | D622  | E-6  |
| Q605       | F-9  | D625  | G-9  |
| Q606       | H-7  | D626  | G-6  |
| Q800       | F-12 | D631  | F-6  |
| Q801       | E-12 | D800  | F-12 |
| Q802       | A-11 | D801  | G-12 |
| Q803       | E-11 | D802  | G-12 |
| Q805       | F-10 | D803  | F-13 |
| Q900       | G-4  | D807  | E-12 |
| Q1200      | H-10 | D808  | E-14 |
| Q1201      | G-6  | D809  | A-14 |
| Q1202      | G-5  | D810  | A-13 |
| Q1203      | G-5  | D812  | B-11 |
| Q1204      | G-5  | D815  | E-14 |
| DIODE      |      | D817  | H-11 |
| D500       | H-12 | D901  | C-1  |
| D502       | H-13 | D902  | I-5  |
| D503       | I-14 | D903  | H-4  |
| D504       | H-11 | D904  | H-5  |
| D505       | H-13 | D905  | I-5  |
| D506       | I-14 | D906  | I-5  |
| D507       | H-13 | D1201 | G-6  |

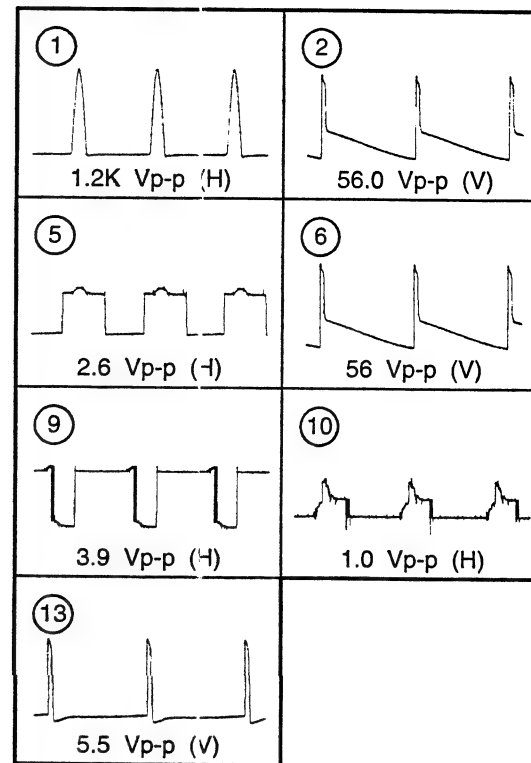








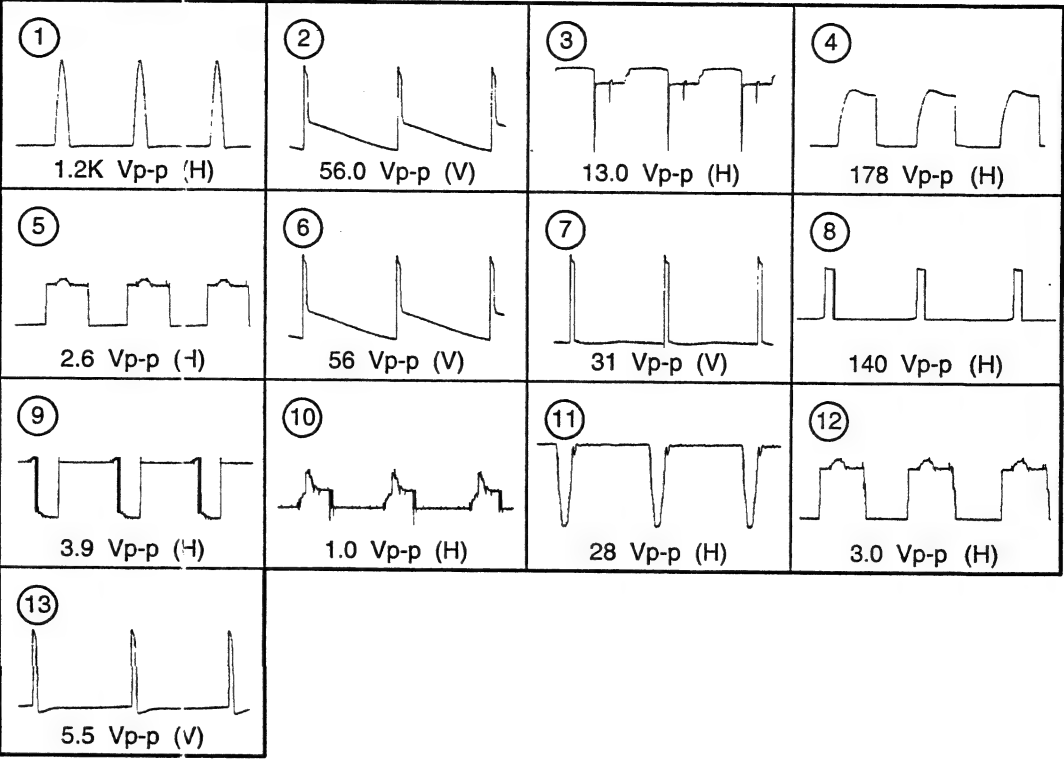
# WAVEFORMS D BOARD



## D BOARD TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |        |             |           |
|--------------------------|--------|-------------|-----------|
| Ref No                   | B Base | C Collector | E Emitter |
| Q501                     | -0.1   | 0.2         | -         |
| Q502                     | 0.1    | -5.8        | -         |
| Q503                     | -5.8   | -12.0       | -12.0     |
| Q602                     | 72.0   | 7.5         | 72.7      |
| Q603                     | 0      | 72.0        | -         |
| Q604                     | 0.7    | -           | -         |
| Q605                     | 0.5    | -           | 0.3       |
| Q606                     | -      | -           | 12.0      |
| Q607                     | -      | 12.0        | -         |
| Q800                     | 0.2    | 3.1         | -         |
| Q801                     | 0.3    | 17.0        | -         |
| Q802                     | -0.2   | 143.3       | -         |
| Q803                     | -0.6   | 99.8        | -         |
| Q805                     | -      | 3.6         | -         |
| Q900                     | -      | 5.4         | -         |
| Q1200                    | 2.9    | 21.5        | 4.6       |
| Q1201                    | 3.4    | 5.0         | 3.0       |
| Q1202                    | 2.8    | -           | -         |

WAVEFORMS D BOARD



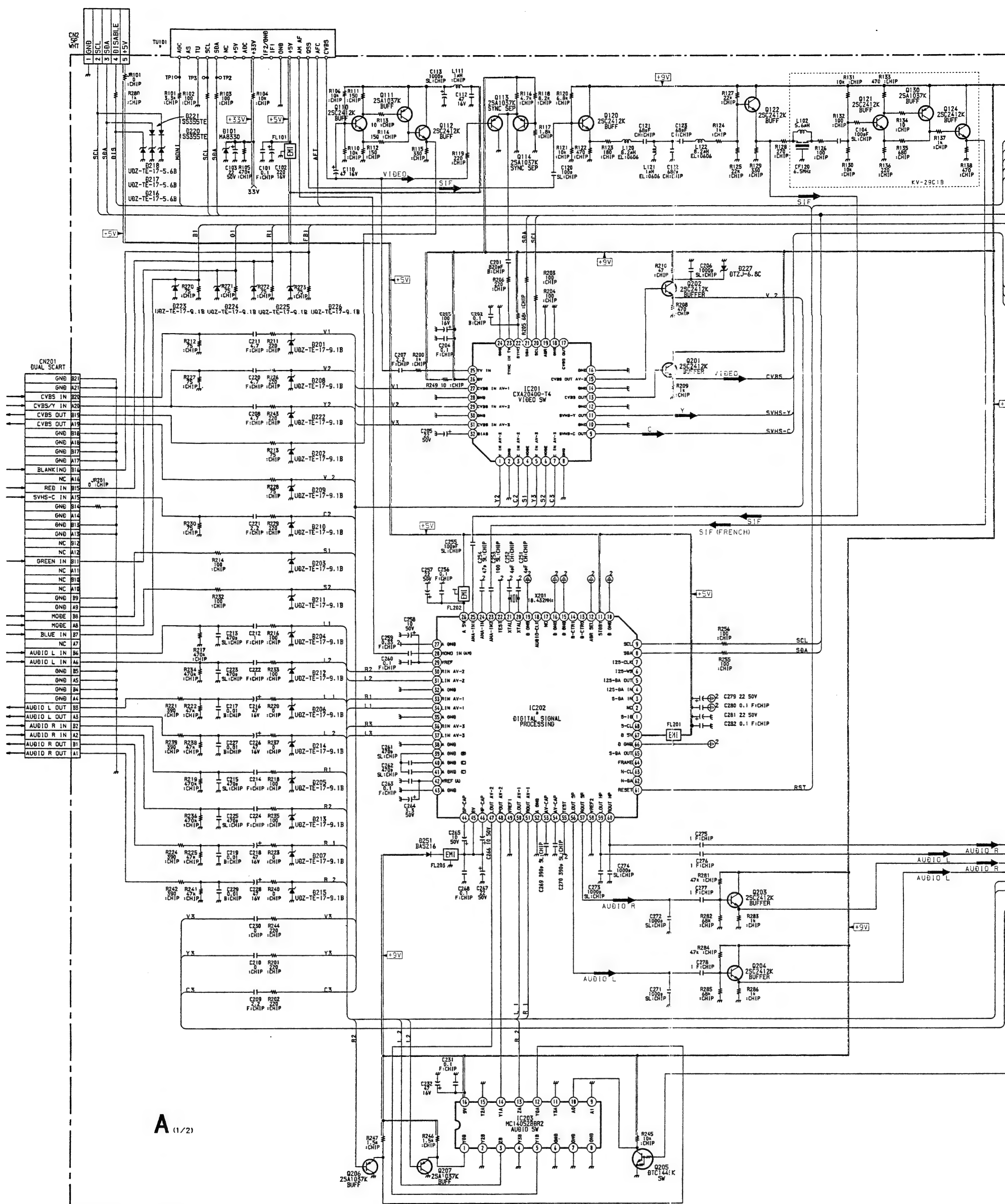
D BOARD  
TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |        |             |           |
|--------------------------|--------|-------------|-----------|
| Ref No                   | B Base | C Collector | E Emitter |
| Q501                     | -0.1   | 0.2         | -         |
| Q502                     | 0.1    | -5.8        | -         |
| Q503                     | -5.8   | -12.0       | -12.0     |
| Q602                     | 72.0   | 7.5         | 72.7      |
| Q603                     | 0      | 72.0        | -         |
| Q604                     | 0.7    | -           | -         |
| Q605                     | 0.5    | -           | 0.3       |
| Q606                     | -      | -           | 12.0      |
| Q607                     | -      | 12.0        | -         |
| Q800                     | 0.2    | 3.1         | -         |
| Q801                     | 0.3    | 17.0        | -         |
| Q802                     | -0.2   | 143.3       | -         |
| Q803                     | -0.6   | 99.8        | -         |
| Q805                     | -      | 3.6         | -         |
| Q900                     | -      | 5.4         | -         |
| Q1200                    | 2.9    | 21.5        | 4.6       |
| Q1201                    | 3.4    | 5.0         | 3.0       |
| Q1202                    | 2.8    | -           | -         |

D BOARD IC VOLTAGE TABLE

| IC Voltage Table |        |             |
|------------------|--------|-------------|
| Ref No           | Pin No | Voltage (V) |
| IC500            | 1      | 1.5         |
|                  | 2      | 15.0        |
|                  | 3      | -12.3       |
|                  | 4      | -14.0       |
|                  | 5      | 0.1         |
|                  | 6      | 15.2        |
|                  | 7      | 1.4         |
| IC600            | 1      | 170.0       |
|                  | 2      | -62.4       |
|                  | 3      | -62.6       |
|                  | 4      | -62.2       |
|                  | 5      | -62.0       |
|                  | 6      | -62.6       |
|                  | 7      | -62.4       |
|                  | 8      | -62.0       |
|                  | 9      | -58.0       |
| IC601            | 1      | 64.3        |
|                  | 2      | 63.0        |
|                  | 3      | -62.5       |
|                  | 4      | -58.6       |
| IC602            | 1      | 135.0       |
|                  | 2      | 63.2        |
|                  | 3      | -0.1        |
| IC800            | 3      | 0.9         |
|                  | 5      | 1.5         |
|                  | 6      | 2.0         |
|                  | 7      | 0.2         |
|                  | 8      | 9.0         |
| IC1200           | 2      | 21.7        |
|                  | 4      | 21.5        |
|                  | 5      | -21.7       |
| IC1201           | 1      | 4.0         |
|                  | 2      | 9.0         |
|                  | 3      | 4.0         |
|                  | 5      | 0.5         |
|                  | 8      | 0.5         |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

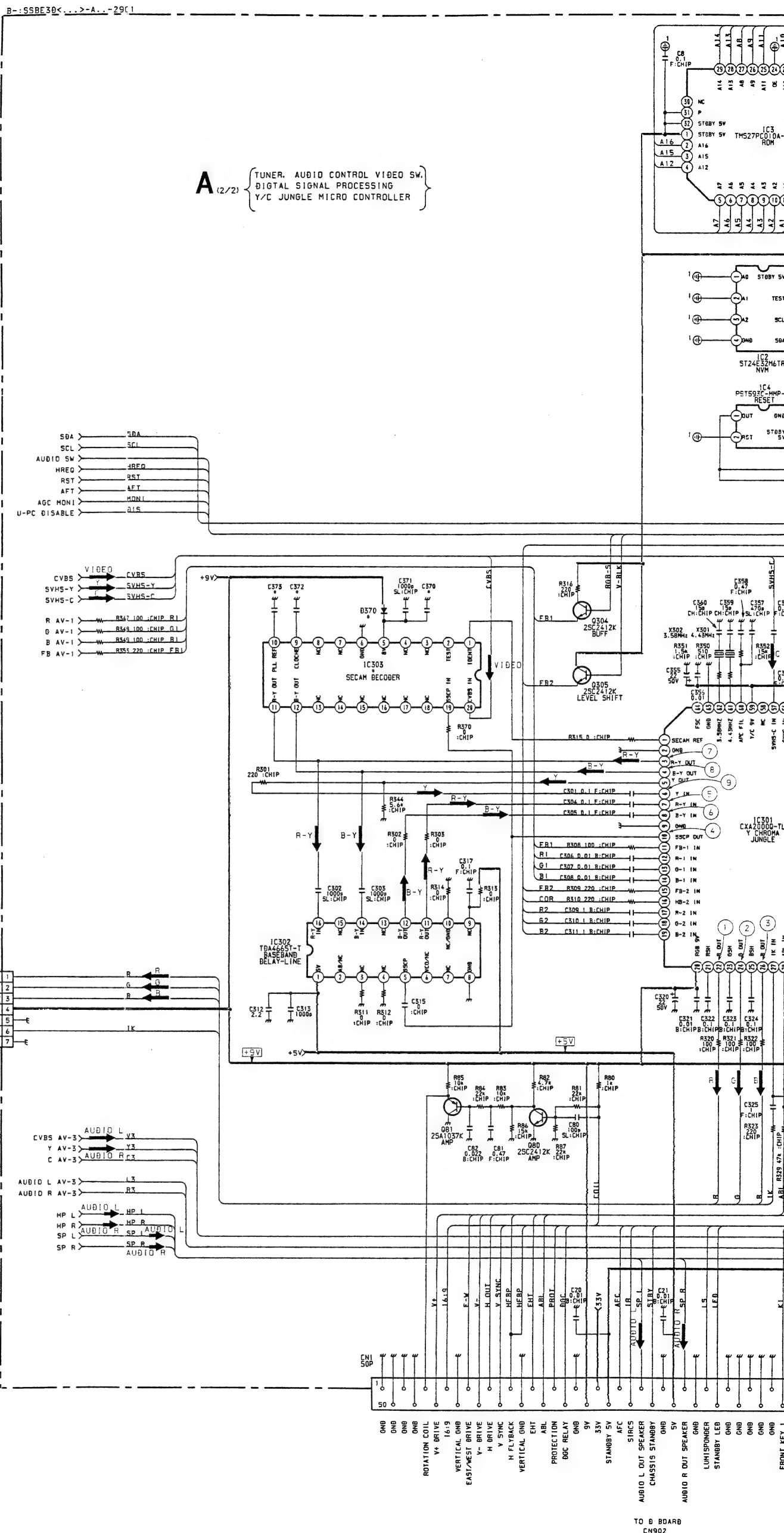


A (1/2)

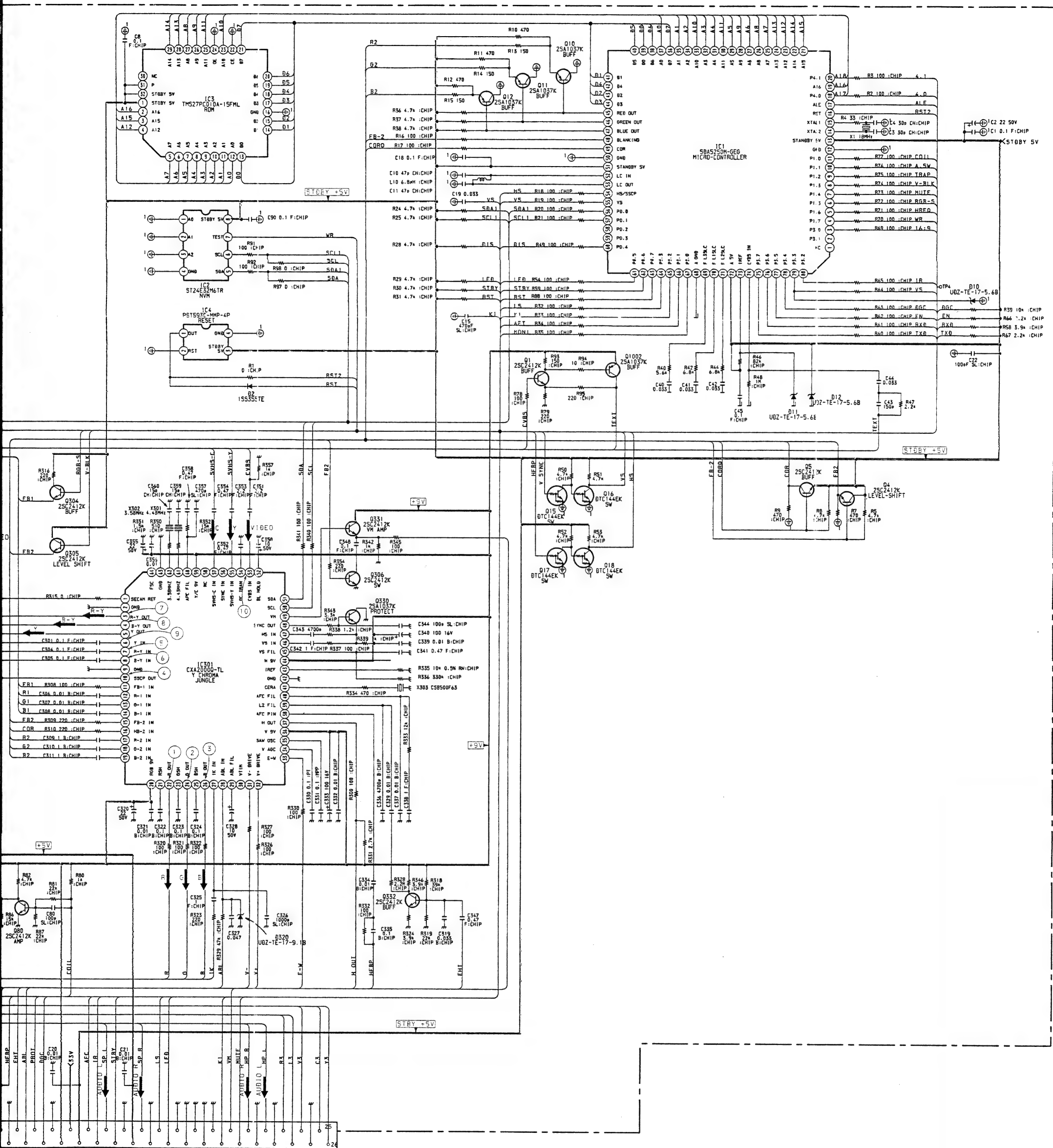
B=SSBE30C...-A...-29C1

**A BOARD \* MARK**

| Model    | 29C1A       | 29C1B      | 29C1D       | 29C1D 1     | 29C1E       | 29C1K       | 29C1R       |
|----------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
| Ref. No. |             |            |             |             |             |             |             |
| C19      | —           | —          | —           | —           | —           | 0.033MF     | 0.033MF     |
| C370     | —           | 2.2UF      | 2.2UF       | 2.2UF       | 2.2UF       | 2.2UF       | 2.2UF       |
| C372     | —           | 0.1UF      | 0.1UF       | 0.1UF       | 0.1UF       | 0.1UF       | 0.1UF       |
| C373     | —           | 0.22UF     | 0.22UF      | 0.22UF      | 0.22UF      | 0.22UF      | 0.22UF      |
| D370     | —           | BAS216     | BAS216      | BAS216      | BAS216      | BAS216      | BAS216      |
| IC202    | MSP3400C-PS | MSP3410-15 | MSP3400C-PS | MSP3400C-PS | MSP3410-15  | MSP3400C-PS | MSP3400C-PS |
| IC303    | —           | TDA8395T   | TDA8395T    | TDA8395T    | TDA8395T    | TDA8395T    | TDA8395T    |
| R51      | —           | —          | —           | —           | —           | 4.7K        | 4.7K        |
| TU101    | TUVIF (AEP) | TUVIF (FR) | TUVIF (AEP) | TUVIF (AEP) | TUVIF (AEP) | TUVIF (AEP) | TUVIF (AEP) |

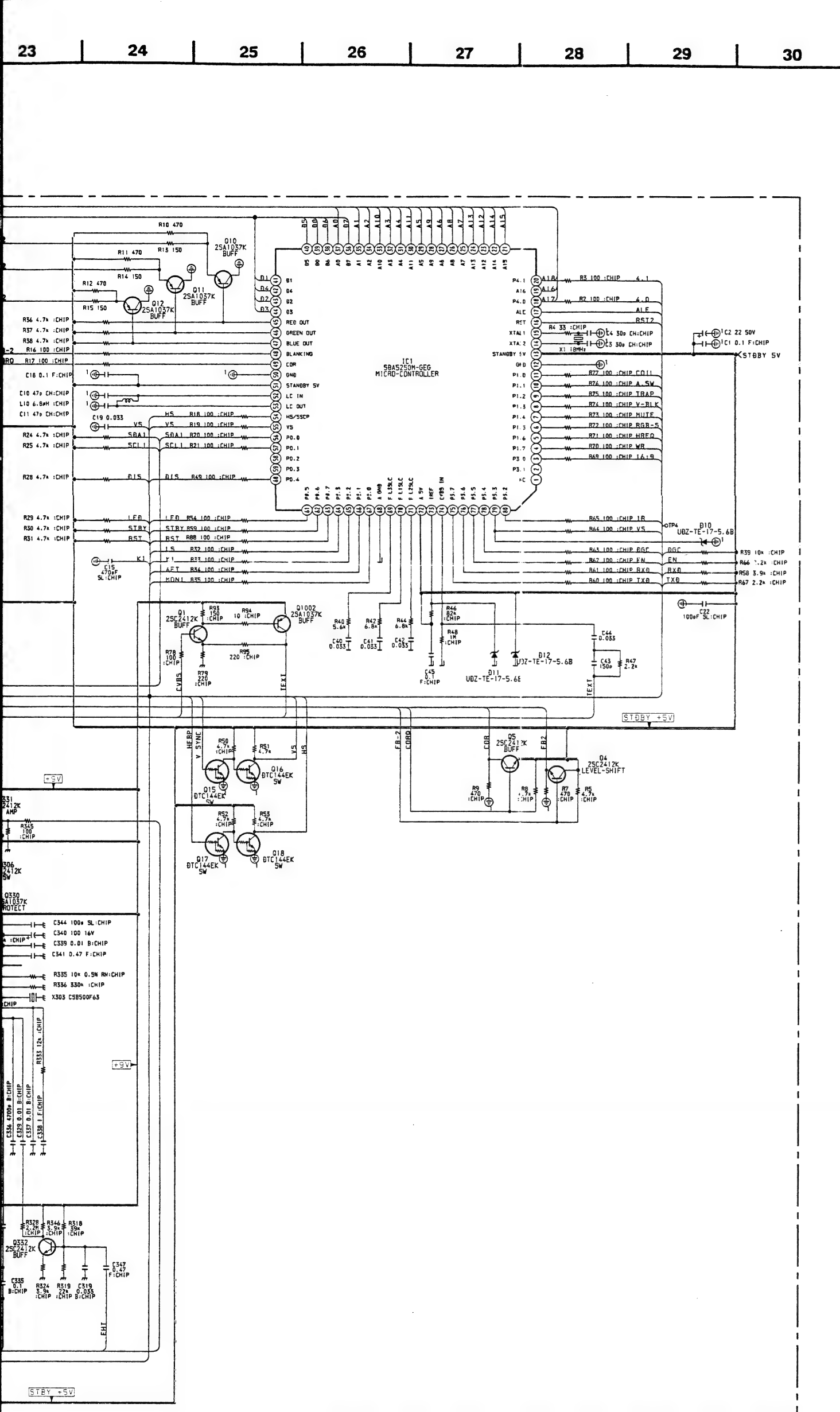






TO 8 BOARD  
CN902





A (1/2) BOARD IC VOLTAGE TABLE

| IC Voltage Table |        |             |
|------------------|--------|-------------|
| Ref No           | Pin No | Voltage (V) |
| IC201            | 13     | 4.4         |
|                  | 15     | 4.4         |
|                  | 20     | 3.5         |
|                  | 21     | 2.7         |
|                  | 22     | 4.9         |
|                  | 23     | 4.4         |
|                  | 24     | 0           |
|                  | 25     | 4.4         |
|                  | 26     | 8.8         |
|                  | 32     | 4.4         |
|                  | 4      | 2.8         |
|                  | 6-7    | 0.1         |
| IC202            | 8      | 3.0         |
|                  | 9      | 3.6         |
|                  | 11     | 4.7         |
|                  | 13     | 4.7         |
|                  | 20-21  | 2.4         |
|                  | 23     | 0.2         |
|                  | 25     | 1.5         |
|                  | 26     | 4.8         |
|                  | 28     | 3.8         |
|                  | 29     | 2.6         |
|                  | 39-42  | 3.8         |
|                  | 44     | 7.1         |
|                  | 45     | 8.0         |
|                  | 46     | 7.1         |
|                  | 47-48  | 3.8         |
|                  | 53-54  | 3.8         |

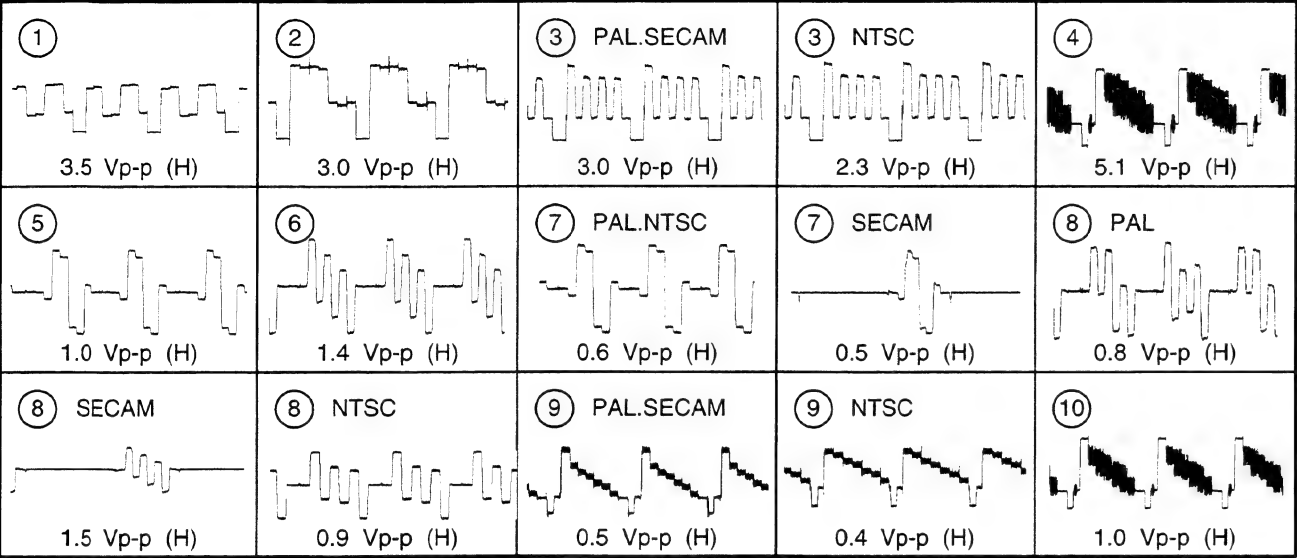
A (2/2) BOARD TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |        |             |           |
|--------------------------|--------|-------------|-----------|
| Ref No                   | B Base | C Collector | E Emitter |
| Q1                       | 3.7    | 4.8         | 3.1       |
| Q4                       | 0.1    | 4.8         | -         |
| Q5                       | 0.7    | 4.8         | 4.0       |
| Q15                      | -      | 4.3         | -         |
| Q16                      | 4.3    | 0.2         | -         |
| Q17                      | 0.4    | 3.5         | -         |
| Q18                      | 3.5    | 0.7         | -         |
| Q80                      | 2.6    | 2.2         | -         |
| Q81                      | 2.4    | -           | 3.0       |
| Q304                     | -      | 4.8         | -         |
| Q305                     | -      | 4.8         | -         |
| Q330                     | 4.5    | -           | 5.1       |
| Q331                     | 6.3    | 8.8         | 5.7       |
| Q332                     | 3.1    | 8.8         | 2.5       |
| Q1001                    | 4.4    | -           | -         |

A (1/2) BOARD TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |        |             |           |
|--------------------------|--------|-------------|-----------|
| Ref No                   | B Base | C Collector | E Emitter |
| Q110                     | 1.8    | 8.2         | 1.2       |
| Q112                     | 1.5    | 8.8         | 0.8       |
| Q113                     | 1.8    | -           | -         |
| Q114                     | 5.4    | 6.0         | -         |
| Q120                     | 84.3   | 8.8         | 3.7       |
| Q121                     | 1.5    | 5.4         | 0.9       |
| Q122                     | 5.4    | 8.8         | 4.7       |
| Q124                     | -      | 8.8         | -         |
| Q201                     | 4.4    | 8.8         | 3.7       |
| Q202                     | 4.4    | 8.8         | 3.7       |

WAVEFORMS A BOARD

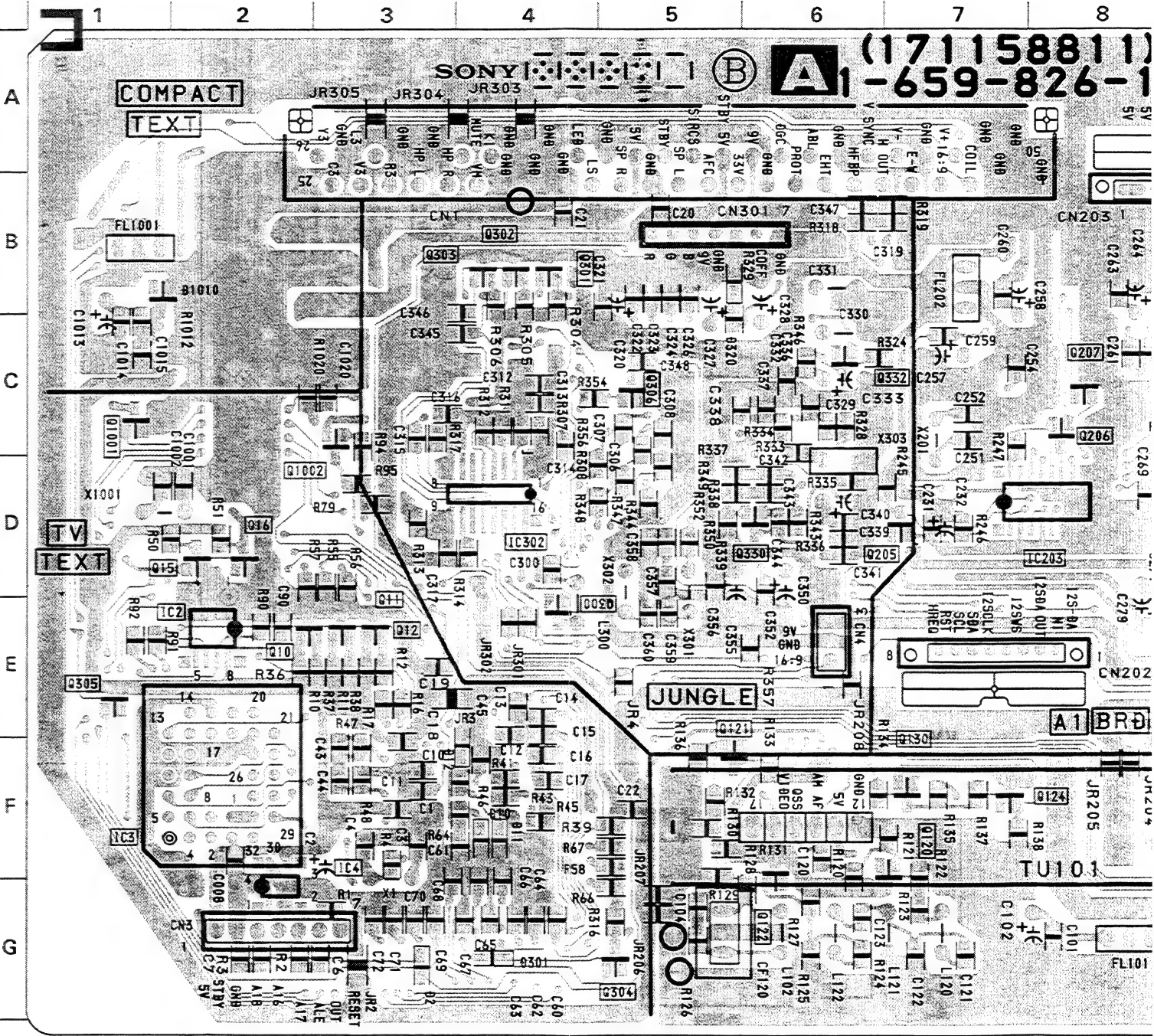


A (2/2) BOARD IC VOLTAGE TABLE

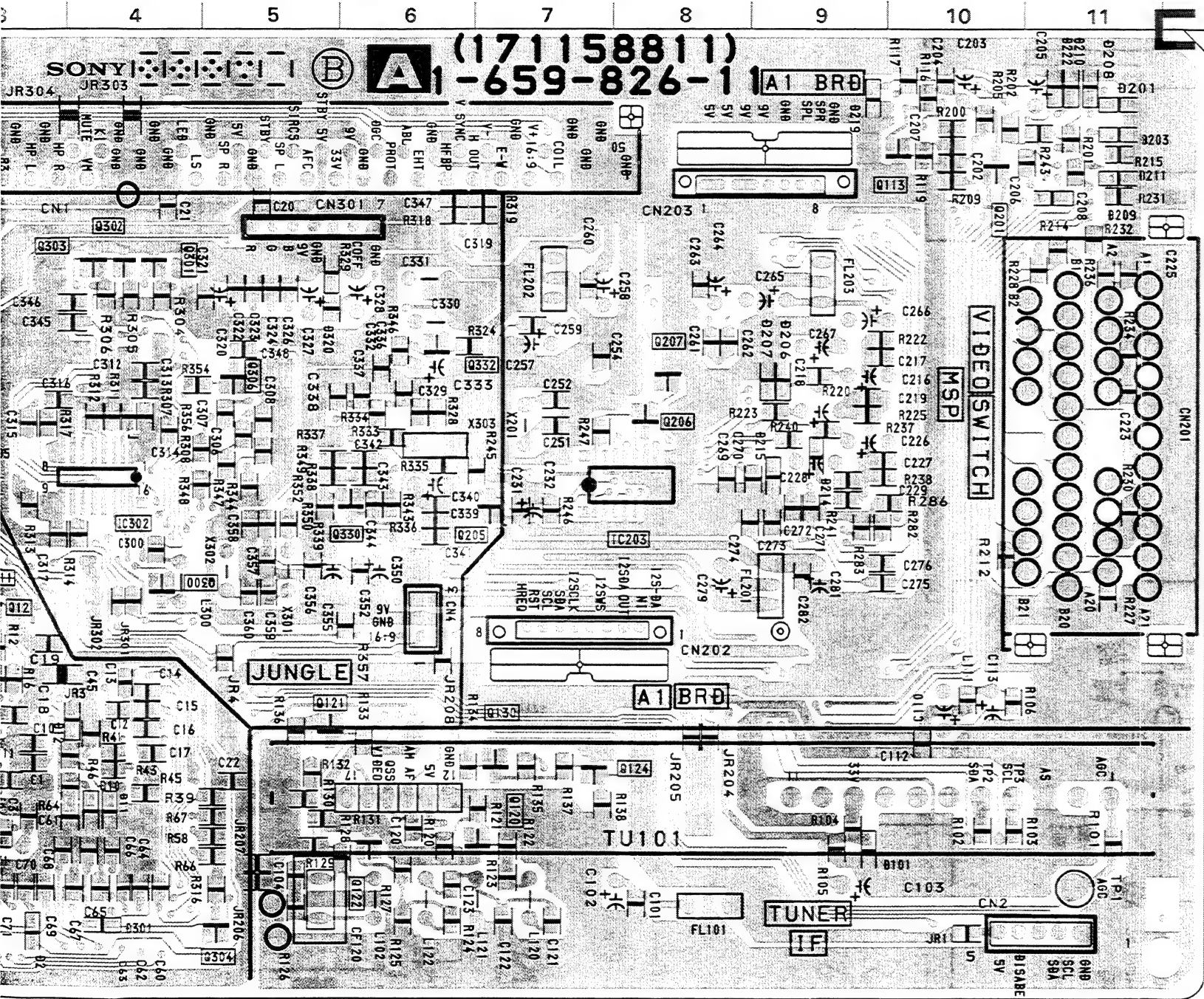
| IC Voltage Table |        |             |        |        |             |        |        |             |
|------------------|--------|-------------|--------|--------|-------------|--------|--------|-------------|
| Ref No           | Pin No | Voltage (V) | Ref No | Pin No | Voltage (V) | Ref No | Pin No | Voltage (V) |
| IC1              | 2      | 3.6         | IC301  | 5      | 3.6         | IC301  | 61     | 5.0         |
|                  | 3-4    | 4.8         |        | 6      | 5.0         |        | 62     | 7.6         |
|                  | 5      | 0.5         |        | 7-8    | 5.4         | IC302  | 1      | 4.8         |
|                  | 7      | 4.8         |        | 10     | 0.6         |        | 5      | 0.7         |
|                  | 9      | 4.8         |        | 12-14  | 5.4         |        | 9      | 4.8         |
|                  | 11     | 2.4         |        | 16     | 4.0         |        | 11-12  | 3.0         |
|                  | 13     | 4.8         |        | 17-19  | 5.4         |        | 14     | 1.3         |
|                  | 14-15  | 2.3         |        | 20     | 8.8         | 16     | 1.3    |             |
|                  | 16-17  | 4.8         |        | 22-23  | 2.2         | IC303  | 5      | 8.0         |
|                  | 48     | 4.0         |        | 24     | 2.0         |        | 3.2    | 10          |
|                  | 51     | 4.8         |        | 25     | 2.4         |        | 11     | 5.6         |
|                  | 52-53  | 2.4         |        | 26     | 2.0         |        | 0      | 19          |
|                  | 54     | 0.7         |        | 27     | 4.0         |        | 20     | 3.7         |
|                  | 55     | 0.2         |        | 28     | 6.6         |        | 4      | 0.2         |
|                  | 56-57  | 4.8         |        | 29     | 8.8         |        | 5      | 0.7         |
|                  | 58     | 2.8         |        | 31-33  | 3.0         | IC1001 | 4      | 0.2         |
|                  | 59     | 3.5         |        | 34     | 4.0         |        | 5      | 0.7         |
|                  | 60     | 2.4         |        | 35     | 4.6         |        | 6      | 1.7         |
|                  | 62     | 0.7         |        | 36     | 8.8         |        | 7      | 1.8         |
|                  | 63     | 4.4         |        | 37     | 3.1         |        | 10     | 0.4         |
|                  | 65     | 4.8         |        | 38     | 3.4         |        | 11-12  | 4.8         |
|                  | 66     | 2.1         |        | 39     | 5.3         |        | 16     | 4.8         |
|                  | 67     | 2.0         |        | 40     | 4.2         |        | 17     | 0           |
|                  | 69-71  | 2.3         |        | 41     | 2.3         |        | 21     | 4.8         |
|                  | 72     | 4.8         |        | 43     | 1.7         |        | 23     | 3.0         |
|                  | 73     | 1.5         |        | 44     | 8.8         |        | 25     | 4.8         |
|                  | 74     | 1.2         |        | 45     | 2.5         |        | 56     | 0           |
|                  | 75-77  | 4.8         |        | 46     | 3.9         |        | 61     | 1.3         |
|                  | 79     | 0.2         |        | 47     | 3.0         |        | 62-63  | 1.4         |
|                  | 80     | 4.8         |        | 48     | 4.4         |        | 64     | 0           |
|                  | IC2    | 5-8         |        | 4.8    | 49          |        | 6.3    | 66          |
| IC3              |        | 1           | 4.8    | 50-51  | 0.1         |        | 67     | 4.7         |
|                  | 31-32  | 4.8         | 53     | 3.9    | 68          |        | 4.0    |             |
| IC4              | 1      | 4.8         | 54     | 5.0    |             |        |        |             |
|                  | 3      | 4.8         | 55-56  | 4.2    |             |        |        |             |
| IC301            | 1      | 1.5         | 58-59  | 8.8    |             |        |        |             |
|                  | 3-4    | 5.6         | 60     | 5.3    |             |        |        |             |

**A** [ TUNER, AUDIO CONTROL VIDEO SW, DIGITAL SIGNAL PROCESSING ]  
[ Y/C JUNGLE MICRO CONTROLLER ]

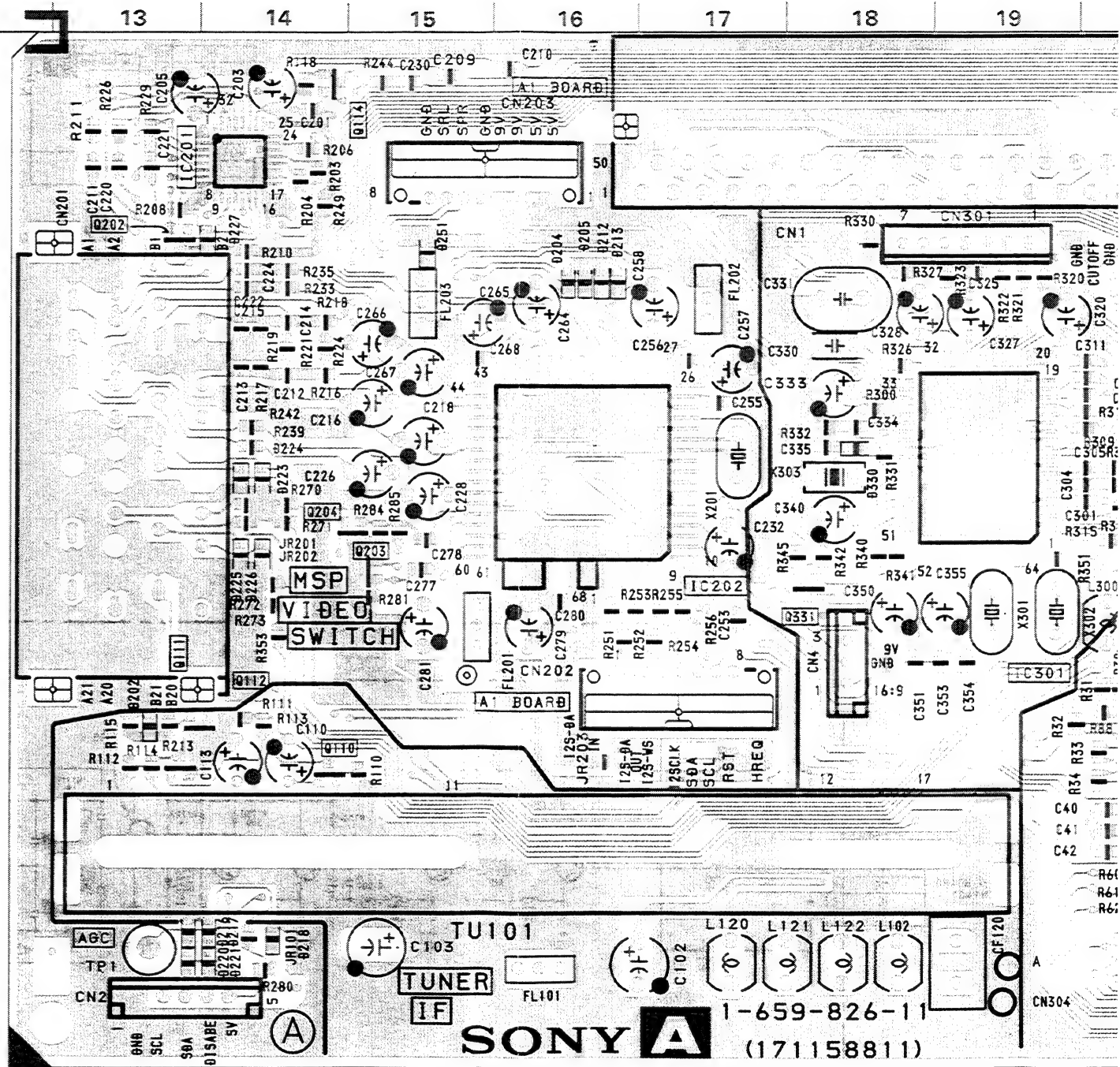
A Board <Conductor Side>







A Board <Component Side>

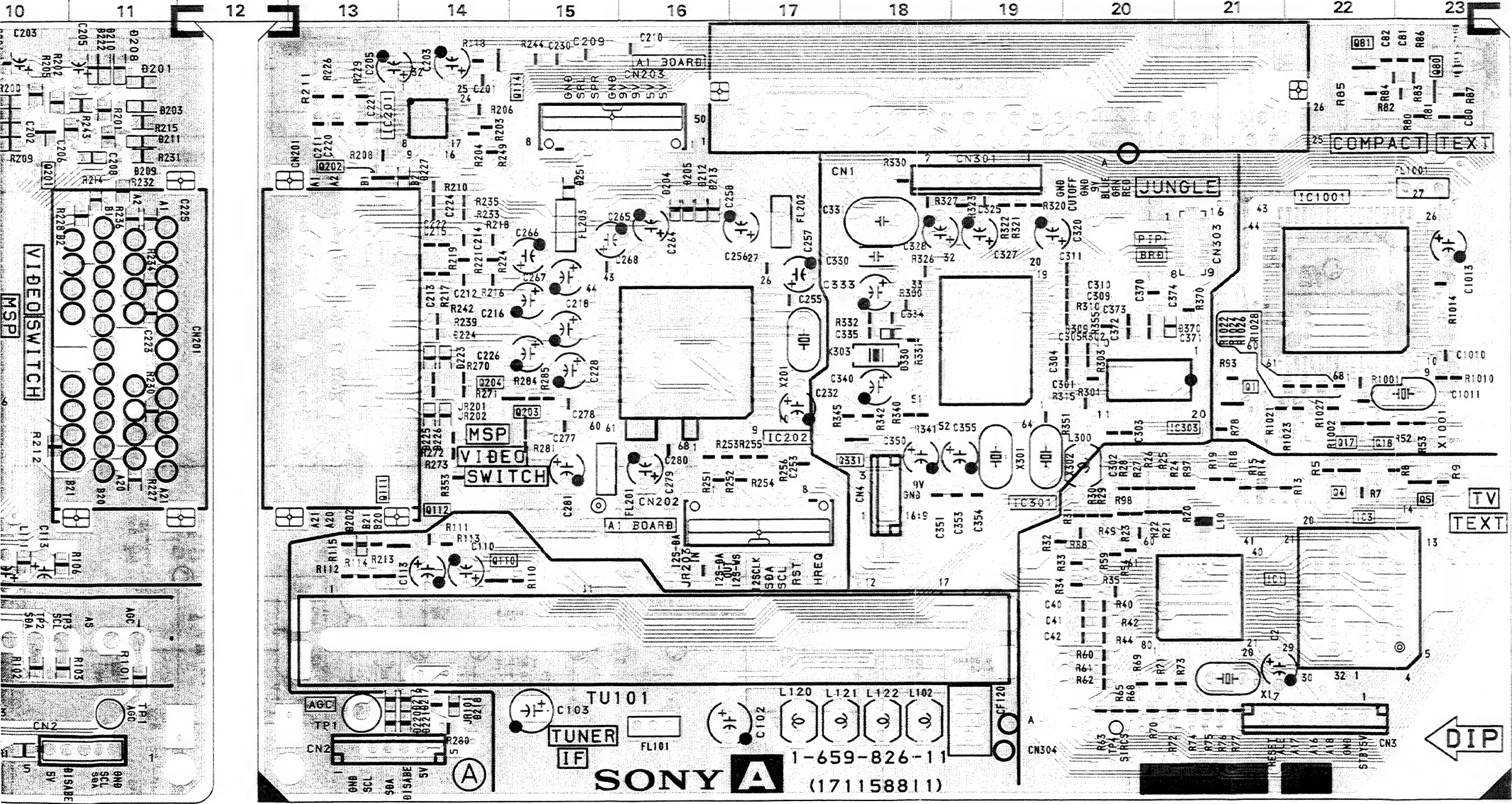


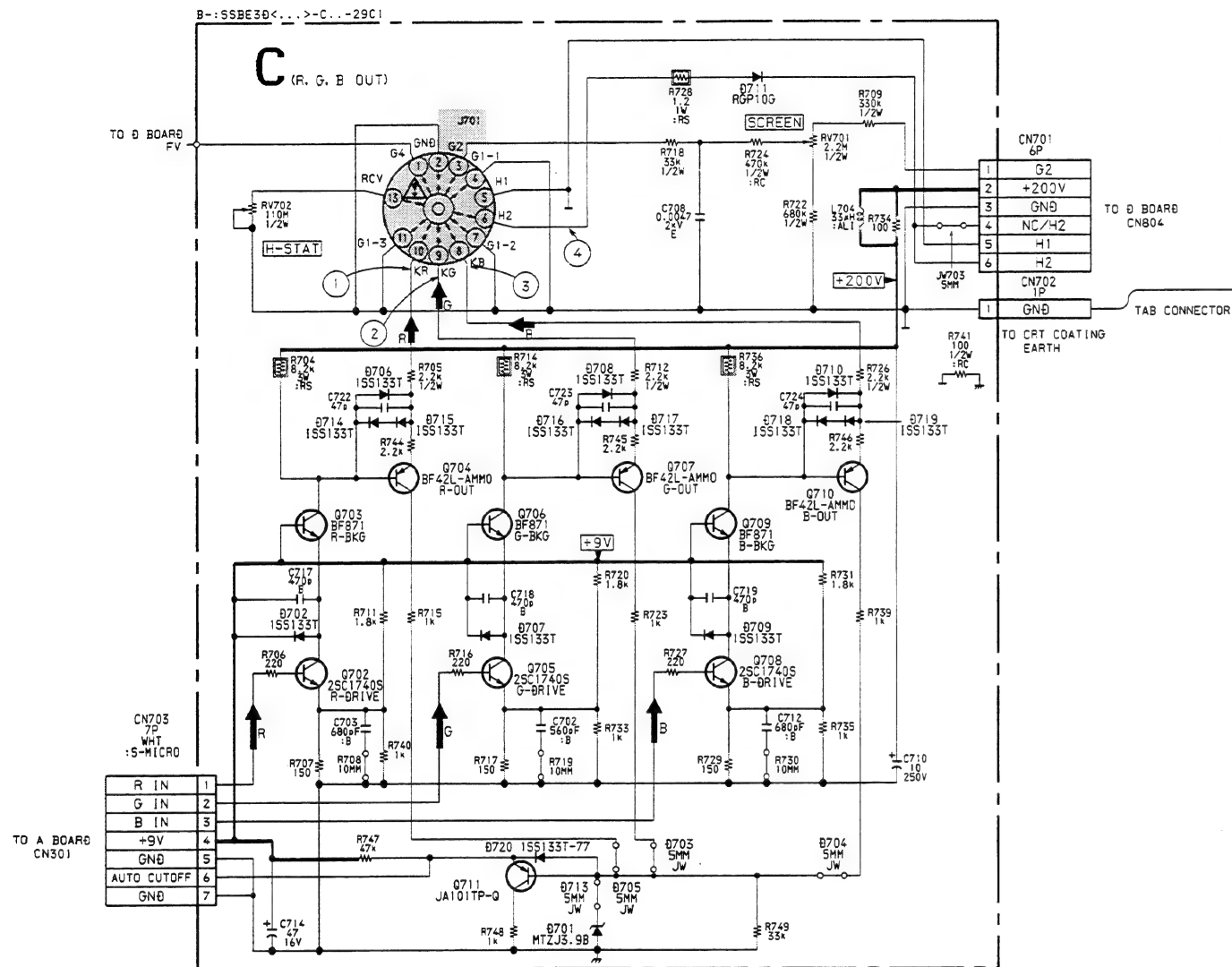


A Board <Component Side>

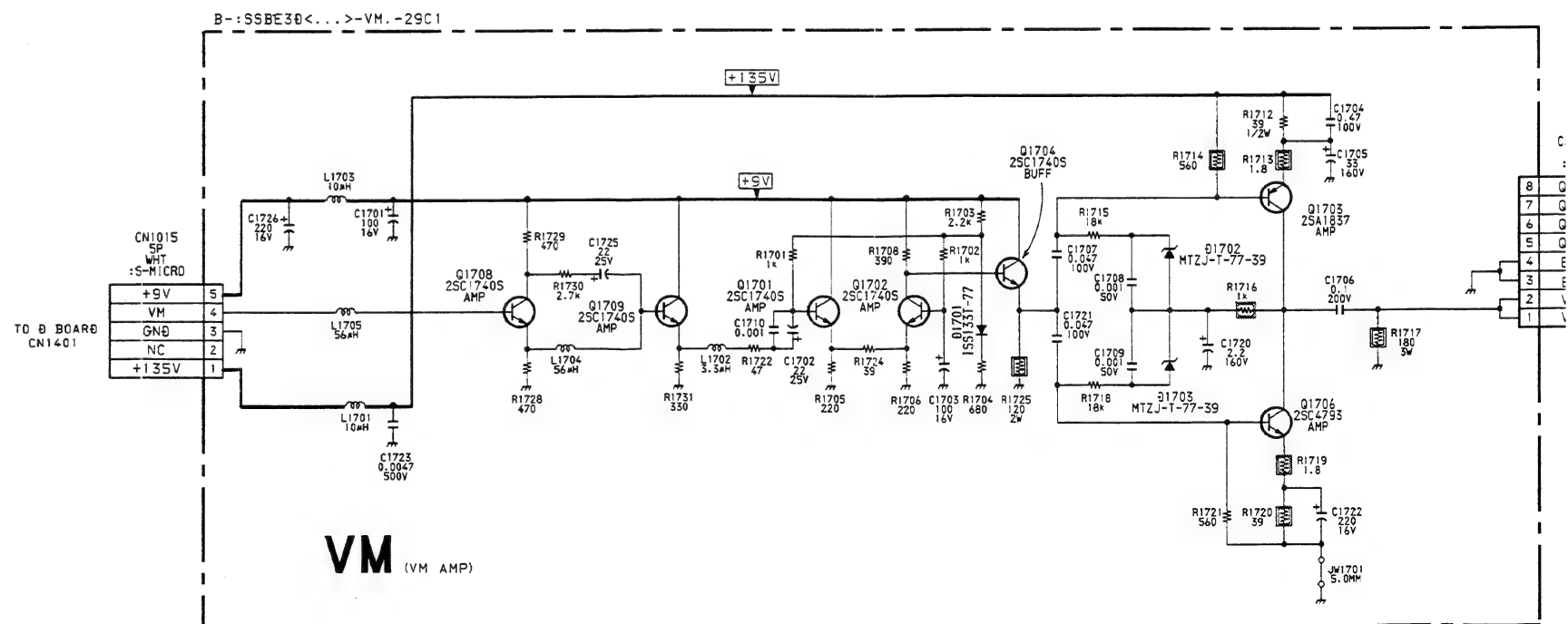
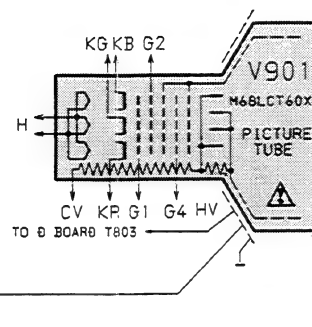
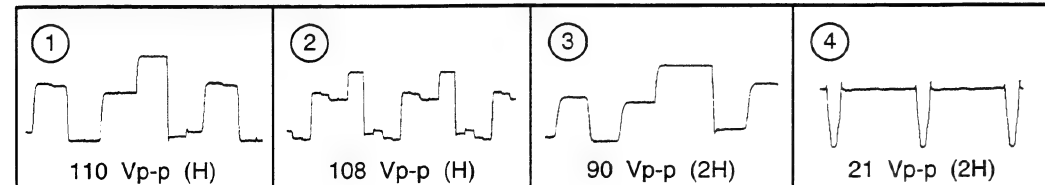
A BOARD

| IC         |      | Q305  | E-1  |
|------------|------|-------|------|
| IC1        | F-21 | Q306  | C-5  |
| IC2        | E-2  | Q330  | D-6  |
| IC3        | F-2  | Q331  | D-18 |
| IC4        | G-2  | Q332  | C-6  |
| IC201      | A-14 | Q1002 | C-3  |
| IC202      | C-16 | DIODE |      |
| IC203      | D-8  | D2    | G-3  |
| IC301      | C-19 | D10   | F-10 |
| IC302      | D-4  | D11   | F-10 |
| IC303      | D-21 | D12   | F-4  |
| TRANSISTOR |      | D101  | F-9  |
| Q1         | D-21 | D201  | A-11 |
| Q4         | E-22 | D202  | E-13 |
| Q5         | E-23 | D203  | A-11 |
| Q10        | E-2  | D204  | B-16 |
| Q11        | E-3  | D205  | B-16 |
| Q15        | D-2  | D206  | C-9  |
| Q16        | D-2  | D207  | C-9  |
| Q17        | D-22 | D208  | A-11 |
| Q18        | D-23 | D209  | B-11 |
| Q80        | A-23 | D210  | A-11 |
| Q81        | A-22 | D211  | B-11 |
| Q110       | F-14 | D212  | B-16 |
| Q111       | E-14 | D213  | B-16 |
| Q112       | E-14 | D214  | D-9  |
| Q113       | A-10 | D215  | D-9  |
| Q114       | A-14 | D216  | G-14 |
| Q120       | F-7  | D217  | G-14 |
| Q121       | F-5  | D218  | G-14 |
| Q122       | F-6  | D220  | G-14 |
| Q124       | F-7  | D221  | D-14 |
| Q130       | F-7  | D222  | D-14 |
| Q201       | B-10 | D223  | D-14 |
| Q202       | B-13 | D224  | D-14 |
| Q203       | D-15 | D225  | D-14 |
| Q204       | D-15 | D226  | D-14 |
| Q205       | D-7  | D227  | B14  |
| Q206       | C-8  | D251  | B-15 |
| Q207       | C-8  | D320  | C-5  |
| Q304       | G-5  | D370  | C-21 |

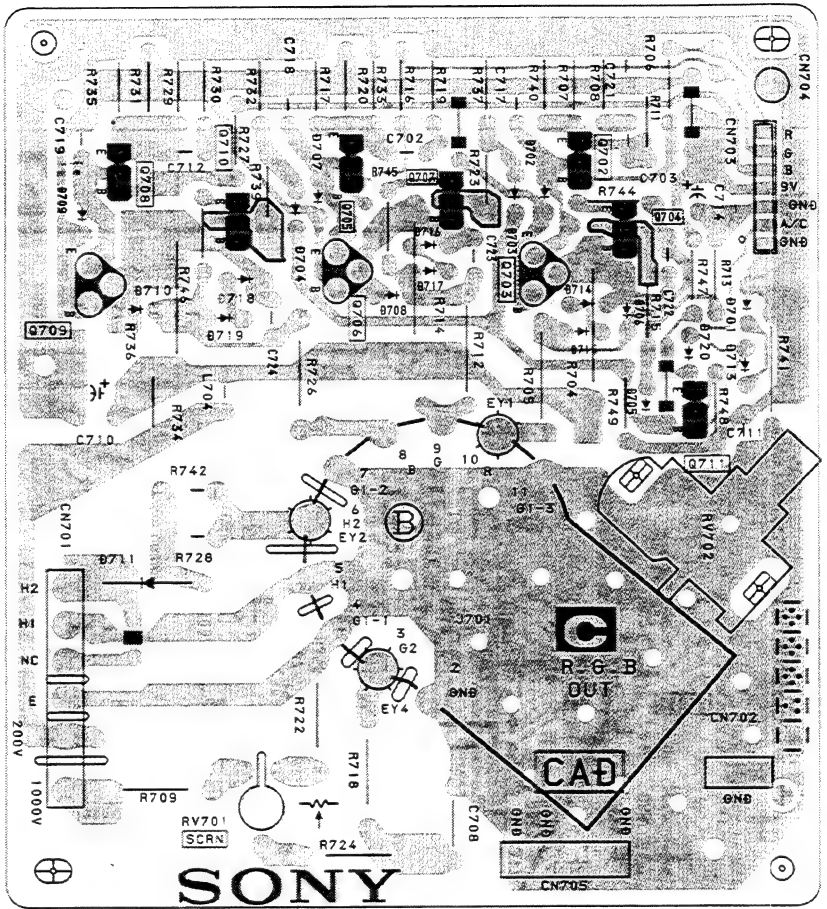




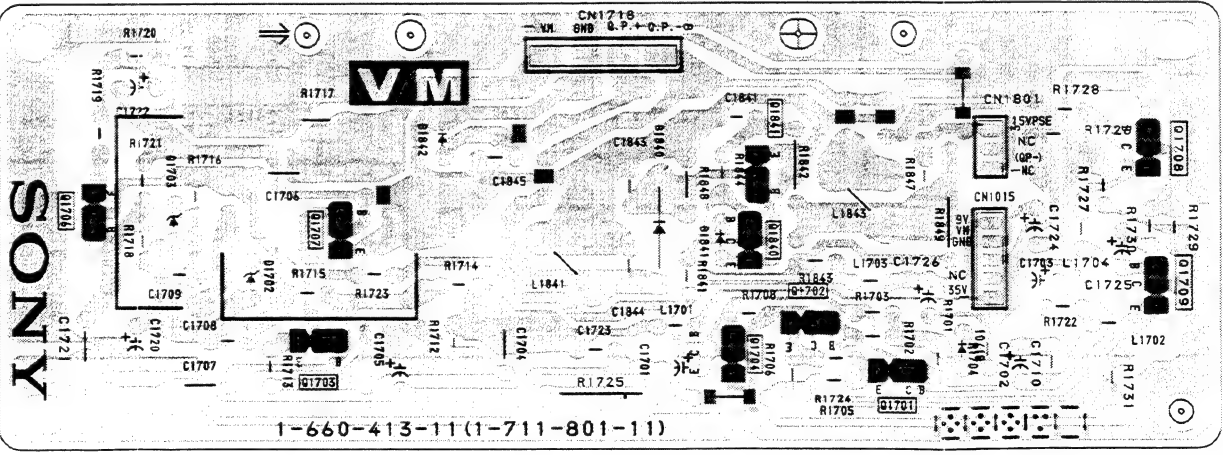
WAVEFORMS C BOARD



C Board

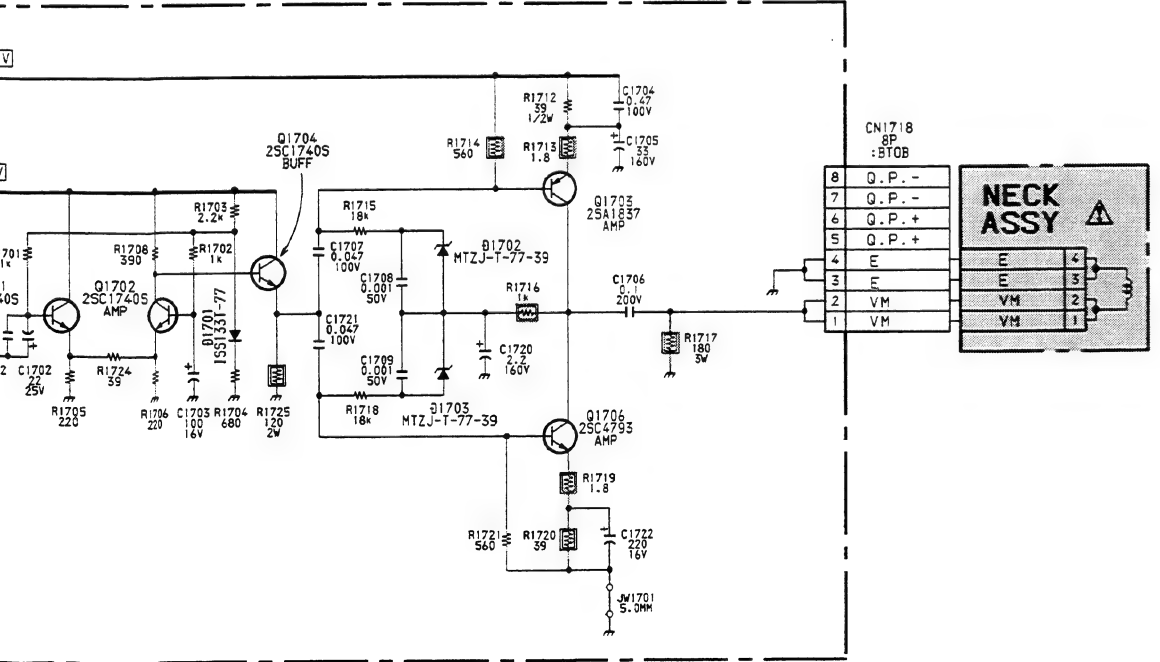
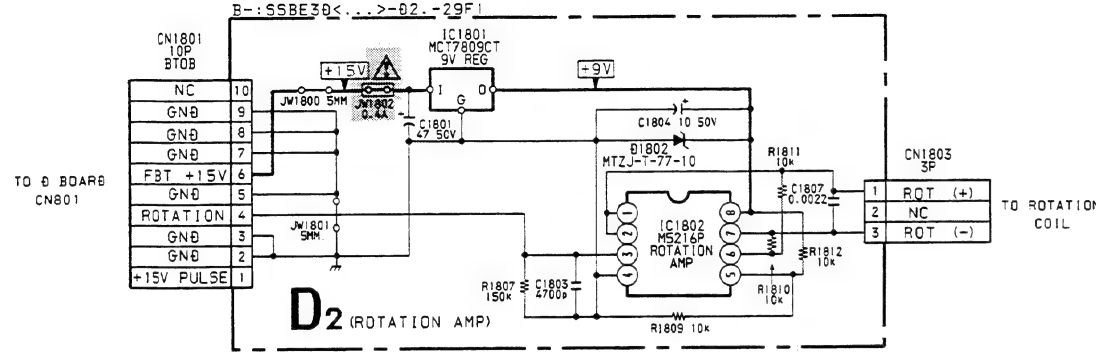


VM Board



C BOARD  
TRANSISTOR VOLTAGE T.

| Transistor Voltage Table |           |                |         |  |
|--------------------------|-----------|----------------|---------|--|
| Ref No                   | B<br>Base | C<br>Collector | E<br>Em |  |
| Q702                     | 2.0       | 11.4           | 1       |  |
| Q703                     | 12.0      | 168.3          | 11      |  |
| Q704                     | 168.3     | 6.0            | 16      |  |
| Q705                     | 1.7       | 11.4           | 1       |  |
| Q706                     | 12.0      | 178.8          | 11      |  |
| Q707                     | 178.2     | 6.2            | 17      |  |
| Q708                     | 2.0       | 11.4           | 1       |  |
| Q709                     | 12.0      | 168.3          | 11      |  |
| Q710                     | 168.0     | 6.4            | 16      |  |





C

[ R, G, B OUT ]

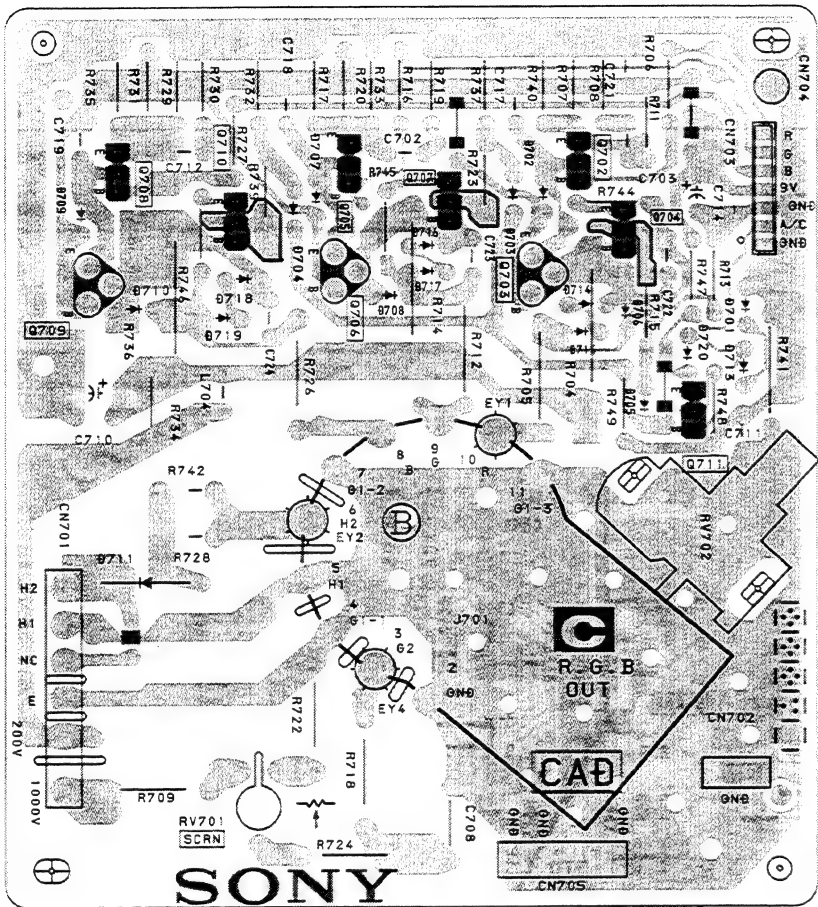
VM

[ VM AMP ]

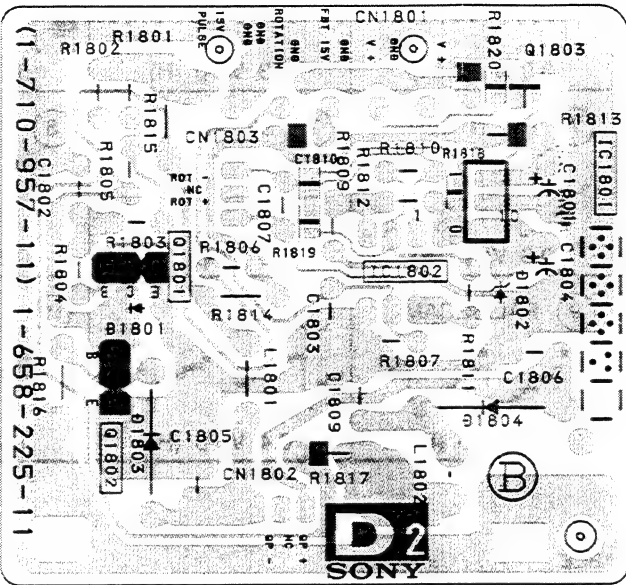
D2

[ ROTATION AMP ]

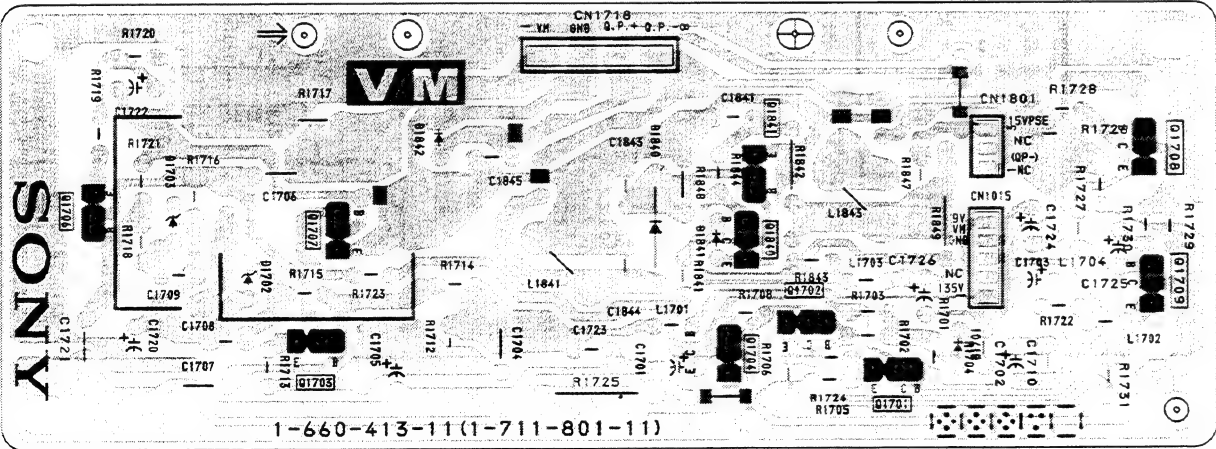
C Board



D2 Board



VM Board



C BOARD  
TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |           |                |              |
|--------------------------|-----------|----------------|--------------|
| Ref No                   | B<br>Base | C<br>Collector | E<br>Emitter |
| Q702                     | 2.0       | 11.4           | 1.4          |
| Q703                     | 12.0      | 168.3          | 11.4         |
| Q704                     | 168.3     | 6.0            | 163.5        |
| Q705                     | 1.7       | 11.4           | 1.2          |
| Q706                     | 12.0      | 178.8          | 11.4         |
| Q707                     | 178.2     | 6.2            | 173.8        |
| Q708                     | 2.0       | 11.4           | 1.4          |
| Q709                     | 12.0      | 168.3          | 11.4         |
| Q710                     | 168.0     | 6.4            | 160.0        |

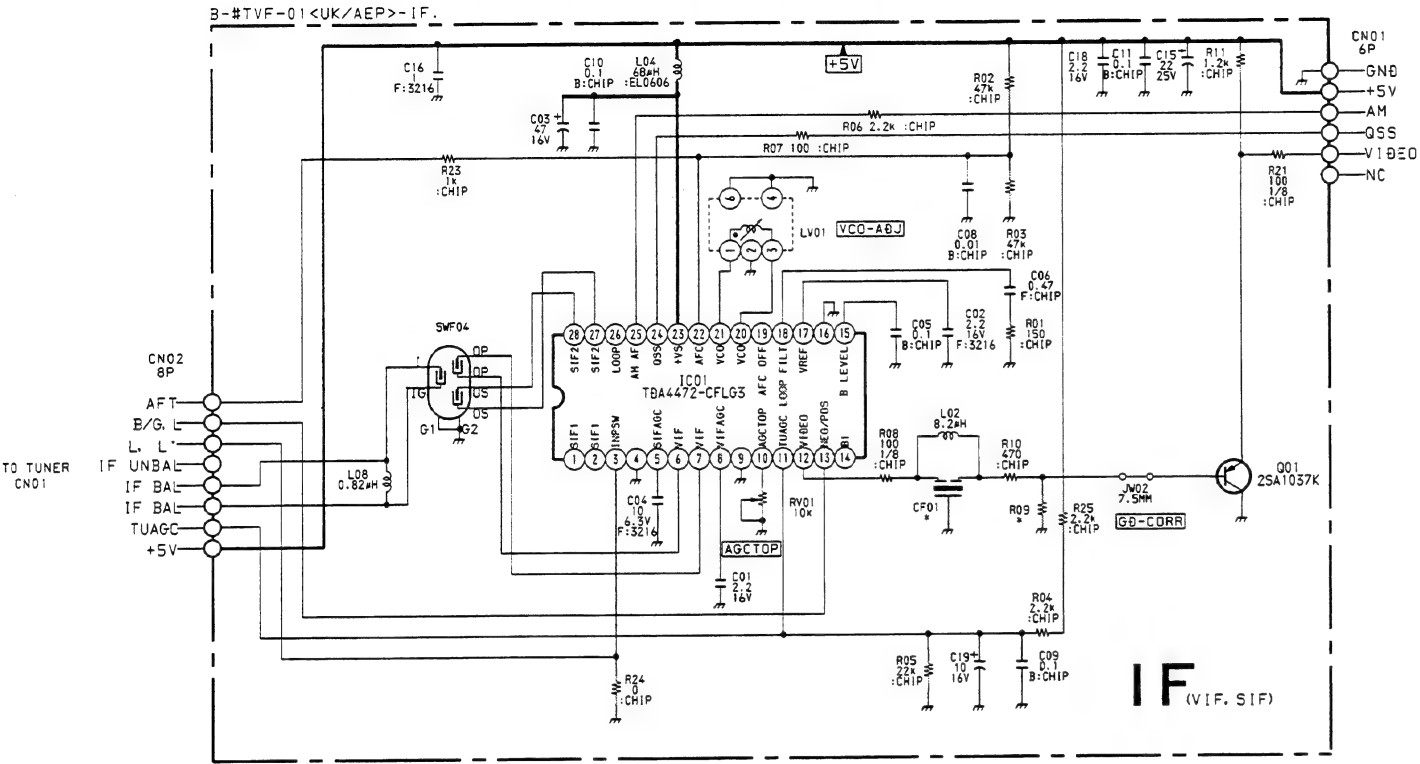
VM BOARD  
TRANSISTOR VOLTAGE TABLE

| Transistor Voltage Table |           |                |              |
|--------------------------|-----------|----------------|--------------|
| Ref No                   | B<br>Base | C<br>Collector | E<br>Emitter |
| Q1701                    | 2.5       | 8.8            | 1.8          |
| Q1702                    | 2.5       | 5.5            | 1.8          |
| Q1703                    | 134.3     | 71.8           | 134.8        |
| Q1704                    | 5.5       | 8.8            | 4.8          |
| Q1706                    | 1.0       | 71.8           | 0.4          |
| Q1707                    | 0.7       | -              | -            |
| Q1708                    | 2.9       | 6.6            | 2.2          |
| Q1709                    | 2.2       | 8.8            | 1.5          |
| Q1840                    | 0.6       | -              | -            |

D2 BOARD IC VOLTAGE TABLE

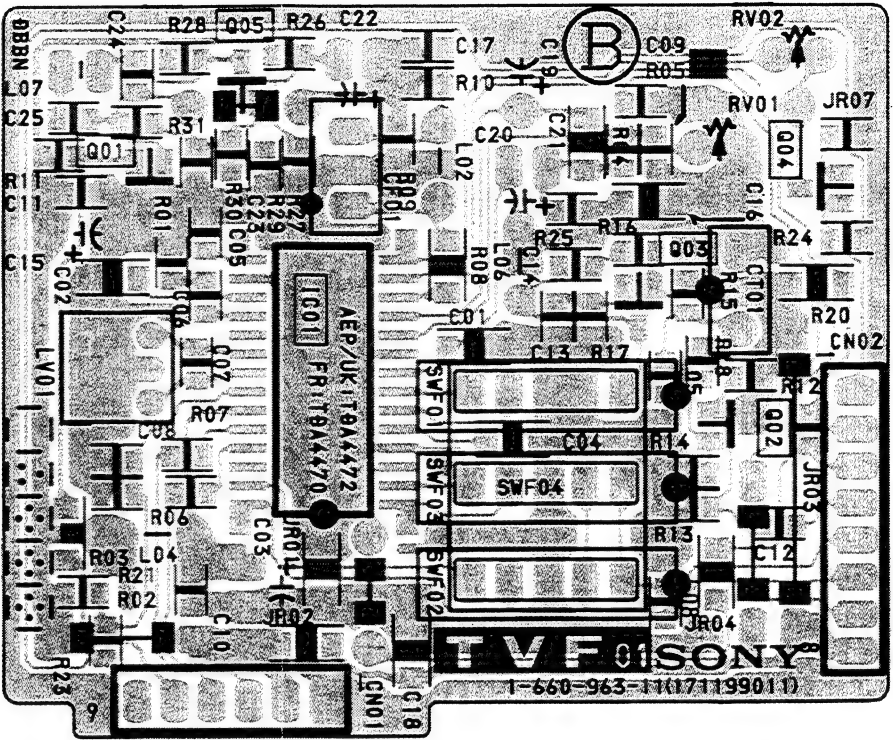
| IC Voltage Table |        |             |
|------------------|--------|-------------|
| Ref No           | Pin No | Voltage (V) |
| IC1802           | 1-2    | 2.8         |
|                  | 3      | 3.0         |
|                  | 5-6    | 4.4         |
|                  | 7      | 6.2         |
|                  | 8      | 9.0         |

VIF (AEP) (KV-29C1A, 29C1D, 29C1D 1, 29C1E, 29C1K ONLY)

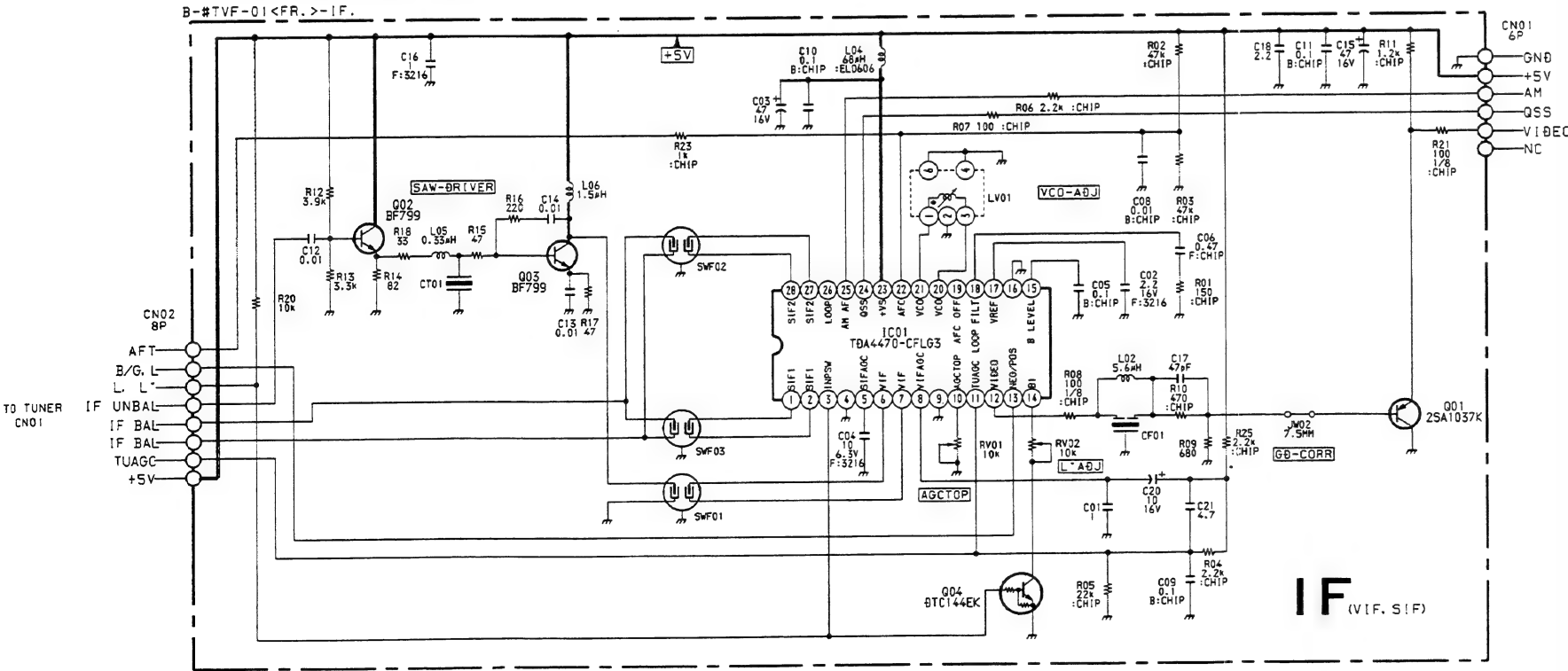


IF [ VIF, SIF ]

IF Board



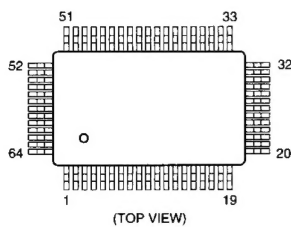
VIF (FR) (KV-29C1B ONLY)



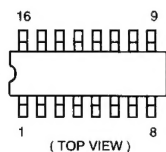


## 5-4. SEMICONDUCTORS

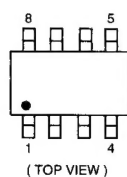
CXA2000Q-TL



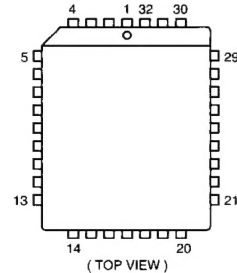
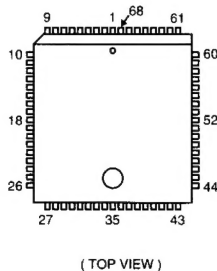
MC14052BDR2



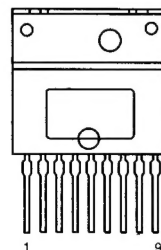
ST24E32M6TR



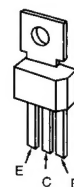
TMS27PC010A-15FML

MSP3400C-PS  
MSP3410-15

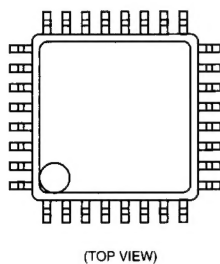
STR-S6708



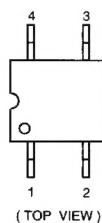
BF871-127



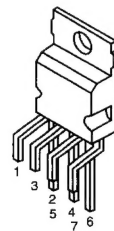
CXA2040Q-T4



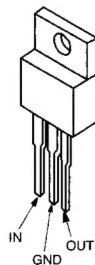
PST593C-MMP-4P



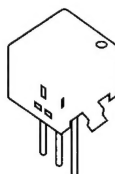
STV9379

BF421L-AMMO  
2SA933AS  
2SA933S  
2SA1091-O  
2SC3502E  
2SC2808STP-R

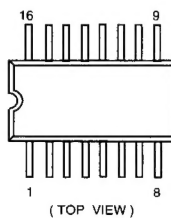
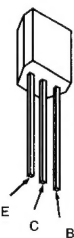
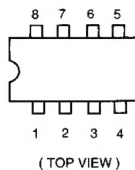
L4941BV



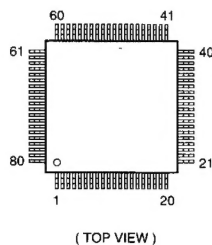
SBX1790-51



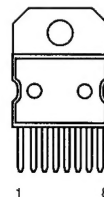
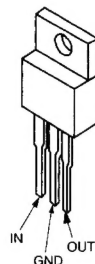
TDA4665T-T

DTA144ES  
DTC114ES  
DTC143TS  
DTC144ES  
2SC1740S-RTLM393P  
TDA2822M  
 $\mu$ PC393C

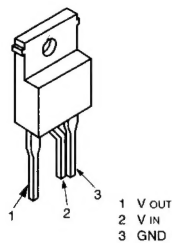
SDA5250M-GEG



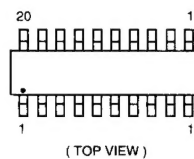
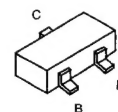
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LM2940T-9.0  
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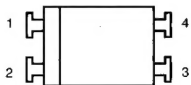
SE135N



TDA8395T

DTC144EK  
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2SC2412K

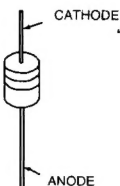
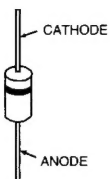
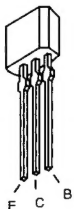
TLP721(D4-)



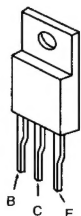
AU-01Z-V1 GP08D  
EG-1Z-V1 RGP02  
EGP20G RGP10GPKG23  
EL1Z RGP15GPKG23  
EM1-V1 RU3YX  
EU-1-V1 RU4AM-T3  
EU2-V1 RU4DS  
FML-G12S

MTZJ-3.9B RD3.9ESB2  
MTZJ-5.1B RD5.1ESB2  
MTZJ-5.6B RD5.6ESB2  
MTZJ-6.2B RD6.2ESB2  
MTZJ-6.8B RD6.8ESB2  
MTZJ-7.5C RD7.5ESB2  
MTZJ-T-77-9.1A  
MTZJ-10 1SS133T-77

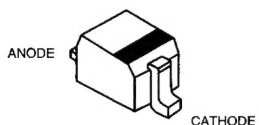
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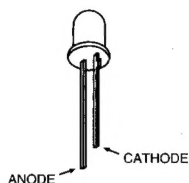
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2SA1837  
2SC3852A



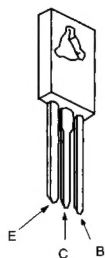
BAS216 MA8330  
DTZ6.8C 1SS355  
DTZ9.1 Udz-TE-17-5.6B  
DTZ33B Udz-TE-17-9.1B



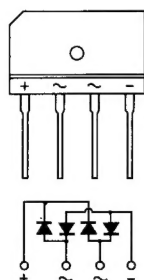
SLA-570KT3F



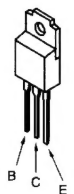
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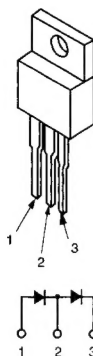
D4SB60L



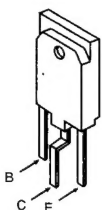
2SC4793



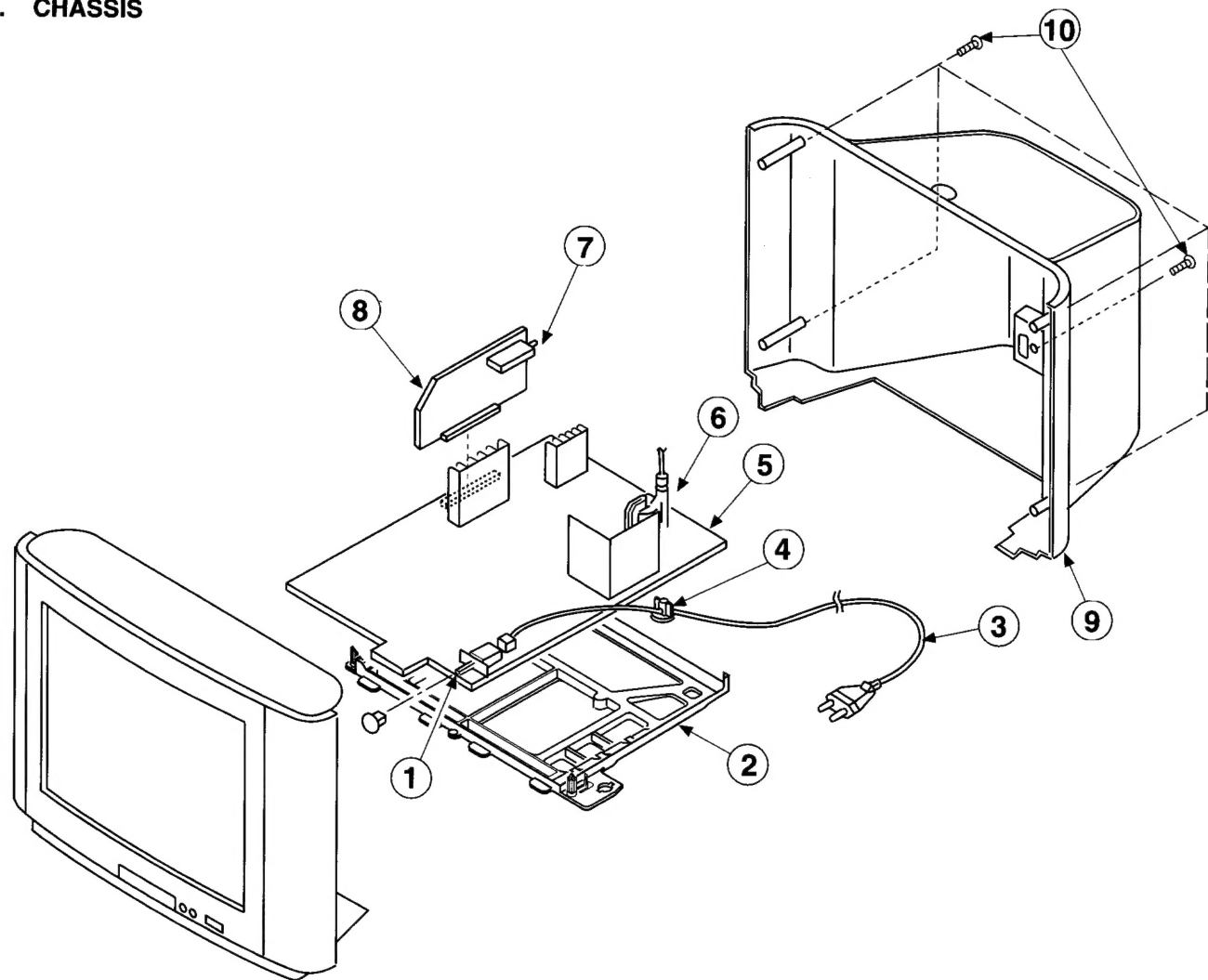
FMS-3FU



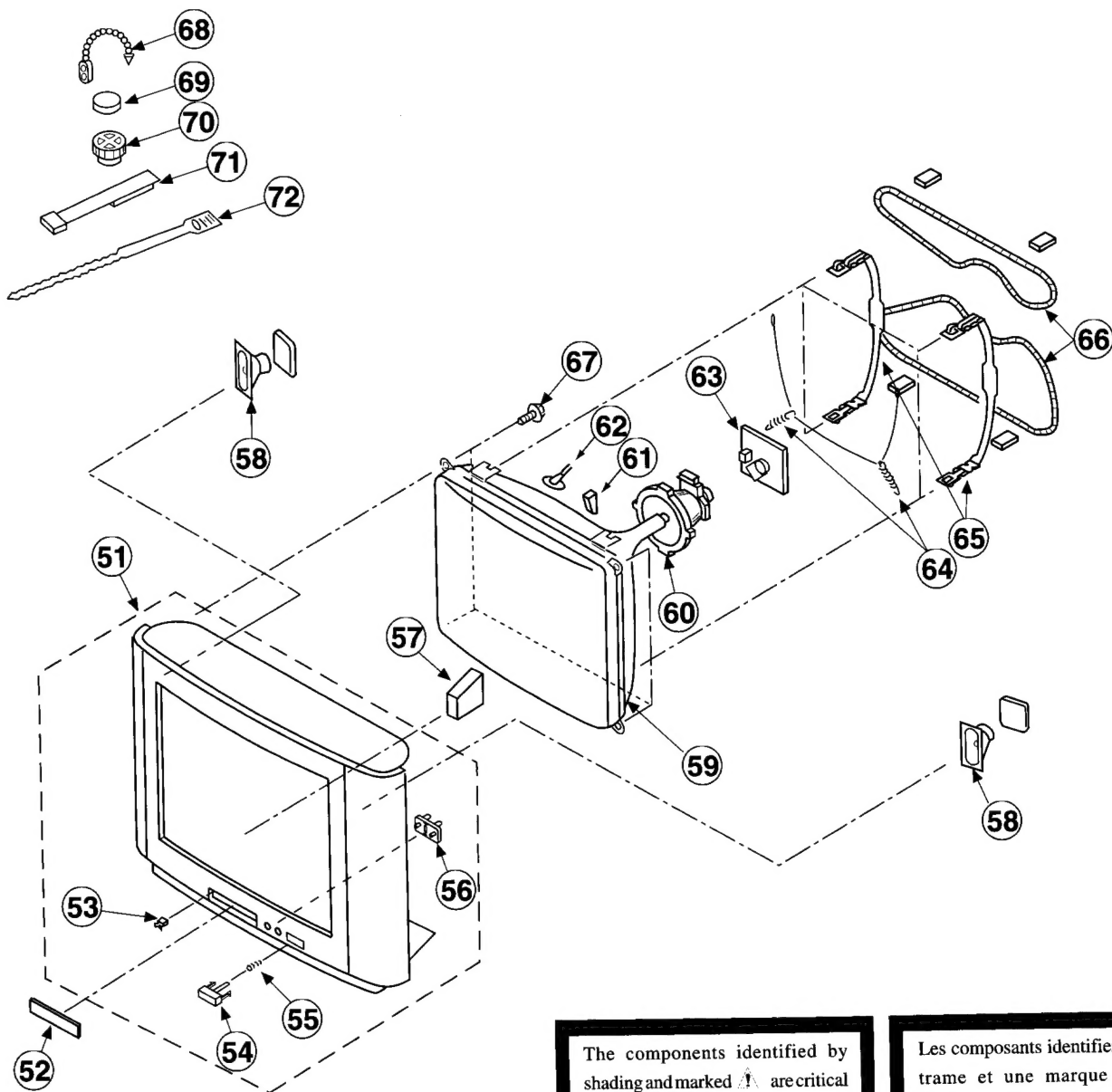
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


## 6-1. CHASSIS




## 6-2. PICTURE TUBE



The components identified by shading and marked  are critical for safety.

Replace only with the part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.